\\VHB.COM\GBL\PROJ\RICHMOND\34965.27 RKK_SR161BIKEPED\CAD\TE\PLANSET\D118061_118064_01
Saved Wednesday, April 26, 2023 4:56:27 PM JBONGHI Plotted Wednesday, February 3, 2021 9:34:18 AM Anthony DeLuca
DESIGNED BY: VHB, (804)343-7100

VIRGINIA DEPARTMENT OF TRANSPORTATION
UPC 118061/118064

FHWA 534
Data 33128

STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.	NHPP-XXXX(XXX) (SEE TABULATION BELOW FOR SECTION NUMBERS)	161	0161-XXX-XXX, P101, C501 (SEE TABULATION BELOW FOR SECTION NUMBERS)	1

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC WORKS
TRANSPORTATION ENGINEERING DIVISION

STATE ROUTE 161 Bike - Phase I & II
Westover Hills Boulevard/Park Drive

CITY OF RICHMOND, VA

FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA			
URBAN OTHER PRINCIPAL ARTERIAL-ROLLING-25/35 MPH POSTED SPEED			
	Fr: Midlothian Tpke To: Forest Hill Ave	Fr: Forest Hill Ave To: South End of Nickel Bridge	Fr: North End of Nickel Bridge To: Grant Street
ADT (2021)	16,000	8,650	9,000
DHV	1,427	818	847
D (%)	50.4%	57.4%	60%
T (%)	3%	1%	0%
V (MPH)	25 (MPH)	35 (MPH)	25 (MPH)

INDEX OF SHEETS

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NOTES:

1. ALL WORK IS WITHIN THE EXISTING RIGHT-OF-WAY.
2. DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE CITY OF RICHMOND.
3. THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE 2020 VDOT ROAD AND BRIDGE SPECIFICATIONS, 2016 VDOT ROAD AND BRIDGE STANDARDS, 2009 FHWA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 2011 VIRGINIA SUPPLEMENT TO THE MUTCD, 2011 VIRGINIA WORK AREA PROTECTION MANUAL, APPLICABLE CITY OF RICHMOND STANDARDS AND SPECIFICATIONS, AND AS AMENDED BY CONTRACT PROVISIONS AND THE COMPLETE ELECTRONIC VERSION OF THE PLAN ASSEMBLY.

Project: 0161-XXX-XXX Segment I
(UPC 118061)

(49th Street)
From: Hill Top Drive
To: Westover Hills Boulevard

(Westover Hill Blvd)
From: Dunston Avenue
To: Riverside Drive

Project: 0161-XXX-XXX Segment II
(UPC 118064)

(Park Drive)
From: Toll Plaza
To: Blanton Avenue

(Blanton Avenue)
From: Park Drive
To: French Street

90% FINAL DESIGN PLANS NOT FOR CONSTRUCTION

TIER 1 PROJECT

LOCALLY ADMINISTERED PROJECTS

CITY OF RICHMOND
NAME OF LOCALITY

RECOMMENDED FOR APPROVAL FOR RIGHT OF WAY ACQUISITION
DIRECTOR, DEPARTMENT OF PUBLIC WORKS
DATE — TITLE OF POSITION

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION
DIRECTOR, DEPARTMENT OF PUBLIC WORKS
DATE — TITLE OF POSITION

CONVENTIONAL SYMBOLS

STATE LINE
COUNTY LINE
CITY,TOWN OR VILLAGE
RIGHT OF WAY LINE
PROPOSED PERMANENT EASEMENT
PROPOSED TEMPORARY EASEMENT
FENCE LINE
PROPERTY LINE
WATER LINE
SANITARY SEWER LINE
GAS LINE
ELECTRIC UNDERGROUND CABLE
TRAVELED WAY
GUARD RAIL
RETAINING WALL
RAILROADS
BASE OR SURVEY LINE
LEVEE OR EMBANKMENT
BRIDGES
CULVERTS
DROP INLET
POWER POLES
TELEPHONE OR TELEGRAPH POLES
TELEPHONE OR TELEGRAPH LINES
HEDGE
TREES
HEAVY WOODS
GROUND ELEVATION
GRADE ELEVATION

THE COMPLETE ELECTRONIC PDF VERSION OF THE PLAN ASSEMBLY AS AWARDED, HAS BEEN SEALED AND SIGNED USING DIGITAL SIGNATURES AND THE OFFICIAL PLAN ASSEMBLY IN ELECTRONIC FORMAT IS STORED IN THE VDOT CENTRAL OFFICE PLAN LIBRARY, INCLUDING ALL SUBSEQUENT REVISIONS, WILL BE THE OFFICIAL CONSTRUCTION PLANS. FOR INFORMATION RELATIVE TO ELECTRONIC FILES AND LAYERED PLANS, SEE THE GENERAL NOTES.

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DEPARTMENT'S 2020 ROAD AND BRIDGE SPECIFICATIONS, 2016 ROAD AND BRIDGE STANDARDS, 2009 MUTCD, 2011 VIRGINIA SUPPLEMENT TO THE MUTCD, 2011 VIRGINIA WORK AREA PROTECTION MANUAL - REVISION 2 AND AS AMENDED BY CONTRACT PROVISIONS AND THE COMPLETE ELECTRONIC PDF VERSION OF THE PLAN ASSEMBLY.

ALL CURVES ARE TO BE SUPERELEVATED, TRANSITIONED AND WIDENED IN ACCORDANCE WITH STANDARD N/A , EXCEPT WHERE OTHERWISE NOTED.

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OWNER:
CITY OF RICHMOND
DEPT. OF PUBLIC WORKS
CITY HALL, RM 707, RICHMOND, VA

LOCATION MAP
1"=700'
May 2023

0
SCALE IN FEET

REVISED

RECOMMENDED FOR APPROVAL FOR RIGHT OF WAY ACQUISITION
DATE — DISTRICT PLANNING AND INVESTMENT MANAGER
DATE — DISTRICT PROJECT DEVELOPMENT ENGINEER

APPROVED FOR RIGHT OF WAY ACQUISITION
DATE — DISTRICT ENGINEER/ADMINISTRATOR

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION
DATE — DISTRICT PLANNING AND INVESTMENT MANAGER
DATE — DISTRICT PROJECT DEVELOPMENT ENGINEER

APPROVED FOR CONSTRUCTION
DATE — DISTRICT ENGINEER/ADMINISTRATOR

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vhb
115 South 15th Street
Suite 200
Richmond, VA 23219
804.343.7100
vhb.com

DRAWING NO: O-28

PROJECT	SHEET NO.
0161-XXX-XXX	1

Beginning chain 49TH_ST description
==========

Point 491 N 3,712,137.4331 E 11,775,468.7665 Sta 1000+00.0000

Course from 491 to PC 49C1 N 15° 27' 11.7325" E Dist 1,451.2044

Curve Data

Curve 49C1
P.I. Station 1015+18.9081 N 3,713,601.4298 E 11,775,873.4829
Delta = 1° 33' 05.6121" (RT)
Degree = 1° 08' 45.2961"
Tangent = 67.7037
Length = 135.3991
Radius = 5,000.0000
External = 0.4584
Long Chord = 135.3949
Mid. Ord. = 0.4583
P.C. Station 1014+51.2044 N 3,713,536.1737 E 11,775,855.4431
P.T. Station 1015+86.6035 N 3,713,666.1735 E 11,775,893.2830
C.C. N 3,712,203.9129 E 11,780,674.6838
Back = N 15° 27' 11.7325" E
Ahead = N 17° 00' 17.3446" E
Chord Bear = N 16° 13' 44.5386" E

Course from PT 49C1 to PC 49C2 N 17° 00' 17.3446" E Dist 461.6293

Curve Data

Curve 49C2
P.I. Station 1020+86.4957 N 3,714,144.2105 E 11,776,039.4775
Delta = 65° 03' 09.2938" (RT)
Degree = 95° 29' 34.6771"
Tangent = 38.2629
Length = 68.1229
Radius = 60.0000
External = 11.1622
Long Chord = 64.5224
Mid. Ord. = 9.4113
P.C. Station 1020+48.2328 N 3,714,107.6204 E 11,776,028.2874
P.T. Station 1021+16.3557 N 3,714,149.4977 E 11,776,077.3734
C.C. N 3,714,090.0733 E 11,776,085.6643
Back = N 17° 00' 17.3446" E
Ahead = N 82° 03' 26.6384" E
Chord Bear = N 49° 31' 51.9915" E

Course from PT 49C2 to PC 49C3 N 82° 03' 26.6384" E Dist 34.1833

Curve Data

Curve 49C3
P.I. Station 1021+75.2442 N 3,714,157.6350 E 11,776,135.6970
Delta = 20° 00' 55.6400" (RT)
Degree = 40° 55' 32.0045"
Tangent = 24.7052
Length = 48.9070
Radius = 140.0000
External = 2.1631
Long Chord = 48.6587
Mid. Ord. = 2.1302
P.C. Station 1021+50.5390 N 3,714,154.2212 E 11,776,111.2287
P.T. Station 1021+99.4460 N 3,714,152.4678 E 11,776,159.8558
C.C. N 3,714,015.5642 E 11,776,130.5741
Back = N 82° 03' 26.6384" E
Ahead = S 77° 55' 37.7216" E
Chord Bear = S 87° 56' 05.5416" E

Course from PT 49C3 to 495 S 77° 55' 37.7212" E Dist 50.5541

Point 495 N 3,714,141.8941 E 11,776,209.2917 Sta 1022+50.0000

==========
Ending chain 49TH_ST description

Beginning chain WESTOVER_HILLS description
==========

Point WO1 N 3,713,968.3719 E 11,776,188.8209 Sta 2000+00.0000

Course from WO1 to PC WOC1 N 29° 38' 13.1693" W Dist 72.7922

Curve Data

Curve WOC1
P.I. Station 2002+21.0337 N 3,714,160.4891 E 11,776,079.5190
Delta = 46° 52' 08.7132" (RT)
Degree = 16° 45' 11.3469"
Tangent = 148.2415
Length = 279.7628
Radius = 342.0000
External = 30.7459
Long Chord = 272.0276
Mid. Ord. = 28.2099
P.C. Station 2000+72.7922 N 3,714,031.6411 E 11,776,152.8249
P.T. Station 2003+52.5550 N 3,714,302.0764 E 11,776,123.4345
C.C. N 3,714,200.7612 E 11,776,450.0830
Back = N 29° 38' 13.1682" W
Ahead = N 17° 13' 55.5450" E
Chord Bear = N 6° 12' 08.8116" W

Course from PT WOC1 to PC WOC2 N 17° 13' 55.5450" E Dist 227.6646

Curve Data

Curve WOC2
P.I. Station 2006+24.8153 N 3,714,562.1155 E 11,776,204.0898
Delta = 10° 43' 37.3401" (LT)
Degree = 12° 03' 44.1697"
Tangent = 44.5956
Length = 88.9305
Radius = 475.0000
External = 2.0888
Long Chord = 88.8007
Mid. Ord. = 2.0797
P.C. Station 2005+80.2197 N 3,714,519.5217 E 11,776,190.8786
P.T. Station 2006+69.1502 N 3,714,606.4240 E 11,776,209.1420
C.C. N 3,714,660.2372 E 11,775,737.2002
Back = N 17° 13' 55.5450" E
Ahead = N 6° 30' 18.2049" E
Chord Bear = N 11° 52' 06.8749" E

Curve Data

Curve WOC3
P.I. Station 2007+12.4017 N 3,714,649.3967 E 11,776,214.0420
Delta = 8° 14' 46.0848" (RT)
Degree = 9° 32' 57.4677"
Tangent = 43.2513
Length = 86.3533
Radius = 600.0000
External = 1.5569
Long Chord = 86.2788
Mid. Ord. = 1.5528
P.C. Station 2006+69.1504 N 3,714,606.4238 E 11,776,209.1420
P.T. Station 2007+55.5037 N 3,714,691.2225 E 11,776,225.0547
C.C. N 3,714,538.4493 E 11,776,805.2791
Back = N 6° 30' 18.2049" E
Ahead = N 14° 45' 04.2897" E
Chord Bear = N 10° 37' 41.2473" E

Course from PT WOC3 to PC WOC4 N 14° 45' 04.2897" E Dist 2,442.6512

Curve Data

Curve WOC4
P.I. Station 2034+24.2313 N 3,717,271.9906 E 11,776,904.5717
Delta = 5° 10' 39.9509" (RT)
Degree = 1° 08' 45.2961"
Tangent = 226.0765
Length = 451.8452
Radius = 5,000.0000
External = 5.1084
Long Chord = 451.6914
Mid. Ord. = 5.1032
P.C. Station 2031+98.1549 N 3,717,053.3655 E 11,776,847.0076
P.T. Station 2036+50.0000 N 3,717,484.5287 E 11,776,981.6309
C.C. N 3,715,780.2552 E 11,781,682.2108
Back = N 14° 45' 04.2897" E
Ahead = N 19° 55' 44.2406" E
Chord Bear = N 17° 20' 24.2651" E

Point WO6 N 3,717,484.5283 E 11,776,981.6307 Sta 2036+50.0005

==========
Ending chain WESTOVER_HILLS description

vhb
115 South 15th Street
Suite 200
Richmond, VA 23219
804.343.7100

SR 161 Bike Infrastructure / Roadway Conversion Project

Westover Hills Blvd - Park Drive
Richmond, Virginia

No.	Revision	Date	Appvd.

Designed by MRL
Checked by JLB
Issued for 90% Final Design
Date May 2023

SCALE
0 20' 40'

Construction Alignment Sheet

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
Lic. No. 0402051585
PROFESSIONAL ENGINEER

VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT 0161-XXX-XXX
SHEET NO. IA(1)

DGN
$DGNLEV

Beginning chain PARK_DRIVE description
==========

Point PD1 N 3,720,125.5831 E 11,778,097.5869 Sta 3000+00.0000

Course from PD1 to PC PDC1 N 6° 28' 53.4401" W Dist 3.2028

Curve Data

Curve PDC1
P.I. Station 3000+94.3561 N 3,720,219.3361 E 11,778,086.9358
Delta = 18° 49' 13.9650" (RT)
Degree = 10° 25' 02.6920"
Tangent = 91.1532
Length = 180.6643
Radius = 550.0000
External = 7.5024
Long Chord = 179.8531
Mid. Ord. = 7.4014
P.C. Station 3000+03.2028 N 3,720,128.7655 E 11,778,097.2254
P.T. Station 3001+83.8671 N 3,720,308.3837 E 11,778,106.4148
C.C. N 3,720,190.8509 E 11,778,643.7100
Back = N 6° 28' 53.4402" W
Ahead = N 12° 20' 20.5248" E
Chord Bear = N 2° 55' 43.5423" E

Course from PT PDC1 to PC PDC2 N 12° 20' 20.5248" E Dist 196.0105

Curve Data

Curve PDC2
P.I. Station 3007+22.3217 N 3,720,834.4002 E 11,778,221.4804
Delta = 15° 35' 57.8442" (RT)
Degree = 2° 17' 30.5922"
Tangent = 342.4441
Length = 680.6523
Radius = 2,500.0000
External = 23.3446
Long Chord = 678.5520
Mid. Ord. = 23.1286
P.C. Station 3003+79.8777 N 3,720,499.8664 E 11,778,148.3015
P.T. Station 3010+60.5299 N 3,721,136.9329 E 11,778,381.9232
C.C. N 3,719,965.6265 E 11,780,590.5520
Back = N 12° 20' 20.5248" E
Ahead = N 27° 56' 18.3690" E
Chord Bear = N 20° 08' 19.4469" E

Course from PT PDC2 to PC PDC3 N 27° 56' 18.3690" E Dist 118.2415

Curve Data

Curve PDC3
P.I. Station 3013+69.4786 N 3,721,409.8741 E 11,778,526.6726
Delta = 13° 35' 39.3313" (LT)
Degree = 3° 34' 51.5504"
Tangent = 190.7071
Length = 379.6233
Radius = 1,600.0000
External = 11.3253
Long Chord = 378.7335
Mid. Ord. = 11.2457
P.C. Station 3011+78.7714 N 3,721,241.3935 E 11,778,437.3220
P.T. Station 3015+58.3948 N 3,721,594.6359 E 11,778,573.9196
C.C. N 3,721,991.0297 E 11,777,023.7996
Back = N 27° 56' 18.3690" E
Ahead = N 14° 20' 39.0377" E
Chord Bear = N 21° 08' 28.7033" E

Curve Data

Curve PDC4
P.I. Station 3016+64.6022 N 3,721,697.5312 E 11,778,600.2318
Delta = 28° 03' 41.5428" (LT)
Degree = 13° 28' 52.8956"
Tangent = 106.2069
Length = 208.1507
Radius = 425.0000
External = 13.0695
Long Chord = 206.0765
Mid. Ord. = 12.6796
P.C. Station 3015+58.3953 N 3,721,594.6353 E 11,778,573.9194
P.T. Station 3017+66.5460 N 3,721,800.7088 E 11,778,575.0467
C.C. N 3,721,699.9274 E 11,778,162.1688
Back = N 14° 20' 39.0377" E
Ahead = N 13° 43' 02.5051" W
Chord Bear = N 0° 18' 48.2663" E

Course from PT PDC4 to PC PDC5 N 13° 43' 02.5051" W Dist 595.0059

Curve Data

Curve PDC5
P.I. Station 3026+09.2367 N 3,722,619.3636 E 11,778,375.2173
Delta = 52° 42' 17.3757" (LT)
Degree = 11° 27' 32.9612"
Tangent = 247.6848
Length = 459.9364
Radius = 500.0000
External = 57.9854
Long Chord = 443.8911
Mid. Ord. = 51.9596
P.C. Station 3023+61.5519 N 3,722,378.7435 E 11,778,433.9514
P.T. Station 3028+21.4883 N 3,722,718.4361 E 11,778,148.2098
C.C. N 3,722,260.1772 E 11,777,948.2128
Back = N 13° 43' 02.5051" W
Ahead = N 66° 25' 19.8808" W
Chord Bear = N 40° 04' 11.1930" W

Course from PT PDC5 to PD7 N 66° 25' 19.8808" W Dist 478.5117

Point PD7 N 3,722,909.8380 E 11,777,709.6453 Sta 3033+00.0000

==========
Ending chain PARK_DRIVE description

Beginning chain BLANTON_AVE description
==========

Point BA1 N 3,722,818.6672 E 11,777,918.5475 Sta 4000+00.0000

Course from BA1 to PC BAC1 N 21° 53' 26.1359" E Dist 683.6871

Curve Data

Curve BAC1
P.I. Station 4007+91.8506 N 3,723,553.4234 E 11,778,213.7774
Delta = 9° 53' 27.8206" (LT)
Degree = 4° 35' 01.1845"
Tangent = 108.1635
Length = 215.7895
Radius = 1,250.0000
External = 4.6710
Long Chord = 215.5216
Mid. Ord. = 4.6536
P.C. Station 4006+83.6871 N 3,723,453.0587 E 11,778,173.4502
P.T. Station 4008+99.4766 N 3,723,659.2234 E 11,778,236.2650
C.C. N 3,723,919.1031 E 11,777,013.5784
Back = N 21° 53' 26.1359" E
Ahead = N 11° 59' 58.3153" E
Chord Bear = N 16° 56' 42.2256" E

Course from PT BAC1 to BA3 N 11° 59' 58.3149" E Dist 275.5234

Point BA3 N 3,723,928.7265 E 11,778,293.5474 Sta 4011+75.0000

==========
Ending chain BLANTON_AVE description

vhb
115 South 15th Street
Suite 200
Richmond, VA 23219
804.343.7100

SR 161 Bike Infrastructure / Roadway Conversion Project

Westover Hills Blvd - Park Drive
Richmond, Virginia

No.	Revision	Date	Appvd.

Designed by MRL
Checked by JLB
Issued for 90% Final Design
Date May 2023

SCALE
0 20' 40'

Construction Alignment Sheet

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
Lic. No. 0402051585
PROFESSIONAL ENGINEER

VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT 0161-XXX-XXX
SHEET NO. 1A(2)

DGN
$DGNLEV

GENERAL NOTES

1. The Contractor shall be responsible for ensuring that all utilities within the project limits are identified and located before beginning work. The Contractor shall contact Miss Utility of Virginia at 1-800-522-7001, 48 hours prior to any construction activities. Contractor shall coordinate with utility companies as to the location of existing and approved plans of future utility lines. Any disruption of any utility service is the solely the responsibility of the Contractor.

2. All work shall be in accordance with the current edition of the Manual of Uniform Traffic Control Devices (MUTCD), The Virginia Supplement to the MUTCD, and all City of Richmond special provisions and specifications in effect at the time these plans are approved.

3. Any pavement markings that will conflict with the proposed pavement markings shall be completely eradicated.

4. The Contractor shall be responsible for job site security and safety. Construction activities shall be in accordance with OSHA and local requirements.

5. Work shall remain within the existing right of way and shall conform to the City of Richmond Standards.

6. Contractor shall make necessary construction notifications and apply for and obtain all necessary permits and post any bonds associated with the work indicated on these plans. Contractor shall not close or obstruct any existing roadways, sidewalks, or fire hydrants without obtaining the appropriate permit from the City.

7. Contractor shall dispose of demolition debris and salvage materials in accordance with applicable Federal, State, and Local regulations, statutes, and ordinances.

8. Areas outside the limits of the proposed work, which are disturbed by the Contractor's activities, shall be restored back to their original condition by the Contractor at the Contractor's expense.

9. This project is not subject to The City of Richmond stormwater management permit (RSMP), as land disturbance is less than 2500 SF.

10. Contractor shall phase work to minimize time between the removal of the existing pavement markings and traffic control devices and the installation of the proposed pavement markings and traffic control devices.

11. Contractor shall seal all asphalt and repair surface as necessary, along bike lanes where minor cracks or joints impede normal bicycle flow. Larger surface repairs or land disturbance activities, if required, shall be performed under a separate contract. Notify City Transportation Engineer of surface conditions where major pavement repairs may be required.

12. Prior to completing pavement marking operations the Contractor shall inspect the existing side street stop bars to ensure they are complete and visible. If an existing side street stop bar shows signs of excessive wear or is missing portions of the complete marking, the stop bar shall be replaced in its entirety.

13. All utility poles and signal poles are to remain along the project corridor and shall be protected during construction. If pole-mounted signs are shown to be removed or replaced with a new sign panel, care shall be taken to protect the pole during sign removals and installations.

LAYOUT AND MATERIALS

1. Dimensions are from the edge of pavement and to the centerline of pavement markings, unless otherwise noted.

2. Proposed bounds and any existing property line monumentation disturbed during construction shall be set or reset by a professional licensed surveyor.

3. When necessary, existing sidewalk shall be saw cut leaving a smooth squared opening for the installation of proposed sign structures. Upon completion of sign structure installation, the existing sidewalk shall be patched/repaired with a minimum of 3000 psi concrete. No additional concrete repair is anticipated with this project, however any incidental concrete for repair or replacement of existing conditions shall be a minimum of 3000 psi.

4. The vertical flexible delineators shown on these plans shall be the PEXCO FG300 MODEL UR or equivalent if approved as equal. The proposed vertical flexible delineators shall be approved by the City of Richmond project manager prior to ordering materials.

EXISTING CONDITIONS INFORMATION

1. PROJECT BACKGROUND/BASE PLAN: The property lines and any other existing conditions and features shown are based on information compiled from the City of Richmond GIS and aerial photography. The information shown is not warranted to be exact or complete. Field verifications of pavement widths, existing pavement markings, and sign locations were performed by VHB in May 2022. Contractor shall notify the Engineer immediately if site conditions shown differ from those shown on these plans.

MAINTENANCE OF TRAFFIC

The purpose of these notes are to describe general traffic operations during construction and it is not intended to provide all necessary details related to maintenance of traffic.

1. All maintenance of traffic opertations and materials shall meet the requirements of the current edition of the Virginia Work Area Protection Manual (VA WAPM), the 2009 MUTCD and any revisions to these documents at the time these plans were approved.

2. Construction warning signs shall be placed in the advanced warning area and "End Road Work" signs shall be placed at the end of the project area in accordance with the VA WAPM. Contractor shall provide all necessary signs and sign stands or posts, which allow for an unrestricted view of the sign message for all project warning and regulatory signs during construction.

3. Construction is allowed Monday through Saturday during the contract period. No lane restrictions or closures will be allowed on Sundays unless directed by the City of Richmond Transportation Engineer.

4. No temporary lane closures, restrictions or flagging operations are permitted along any project roadway between the hours of 6:00AM and 9:00AM and the hours of 3:30PM and 6:00PM Monday through Friday, or as directed by the project engineer.

5. Lane closures will not be permitted on Holidays or on the day before or the day after a holiday unless otherwise directed by the City of Richmond Transportation Engineer.

6. Contractor shall submit a Maintenance of Traffic Plan to the City Transportation Engineer for review and approval, a minimum of two weeks in advance of the beginning of construction.

7. Contractor shall maintain safe access to all existing driveways and maintain pedestrian access along the project corridor at all times.

8. Any work activities within 15 feet of the travel way shall be signed accordingly. Under no circumstance shall work be performed concurrently on both the left and right side of any travel lane.

9. No temporary traffic control measures will be allowed to be placed within the right of way prior to the start of construction.

10. Any flaggers used during construction shall be state certified. Certification shall be available on site at all times.

11. Signing, marking, and other traffic control measures may be changed or adjusted during the course of the project when deemed necessary by the City in the best interest of the general public and to ensure the safe and orderly flow of traffic.

12. Failure to provide temporary traffic control devices in accordance with the VA WAPM shall result in immediate corrective measures by the Contractor at no additional cost to the City. All traffic devices and temporary signs shall be clean, legible and in fully functional condition.

CITY OF RICHMOND DPW - (WORK WITHIN ROW)

1. All work in the streets and sidewalks shall be performed under an approved permit and monitored by the permit inspector assigned to the project.

2. Work shall not commence until the permit inspector has been notified, a pre-construction conference is held and Miss Utility has cleared the project.

3. Any disturbed sidewalk or curb within the project limits shall be repaired and replaced in accordance with the City of Richmond Standards and as shown in these plans.

4. The City of Richmond requires that bicylcle and pedestrian access be maintained throughout a work zone.

DOCUMENT USE

1. These plans and corresponding CADD documents are instruments of professional service and shall not be used, in whole or in part, for any purpose other than for which it was created without the expressed, written consent of VHB. Any unauthorized use, reuse, modification or alteration, including automated conversion of this document shall be at the user's sole risk without liability or legal exposure to VHB.

2. Contractor shall not rely solely on electronic versions of the plans, specifications, and data files that are obtained from the designer, but shall verify location of project features in accordance with the paper copies of the plans and specifications that are supplied as part of the contract documents.

3. Symbols and legends of project features are graphic representations and are not necessarily scaled to their actual dimensions or exact locations on the drawings. The Contractor shall refer to the detail sheet dimensions, the manufacturer's literature, shop drawings and field measurements of the supplied products for layout and installation of the project features.

115 South 15th Street
Suite 200
Richmond, VA 23219
804.343.7100

SR 161 Bike Infrastructure / Roadway Conversion Project

Westover Hills Blvd - Park Drive
Richmond, Virginia

No.	Revision	Date	Appvd.

Designed by MRL
Checked by JLB
Issued for 90% Final Design
Date May 2023

SCALE
0 20' 40'

General Notes

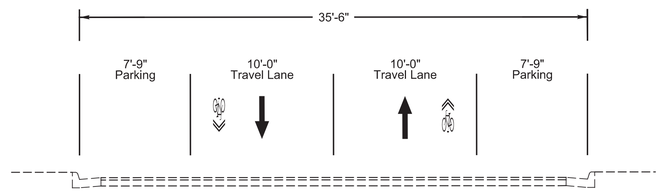
COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
Lic. No. 0402051585
PROFESSIONAL ENGINEER

VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT 0161-XXX-XXX
SHEET NO. 1B

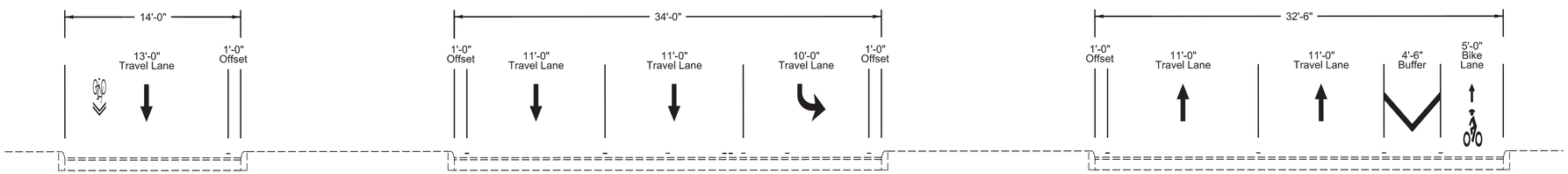
DGN
$DGNLEV

W. 49th Street



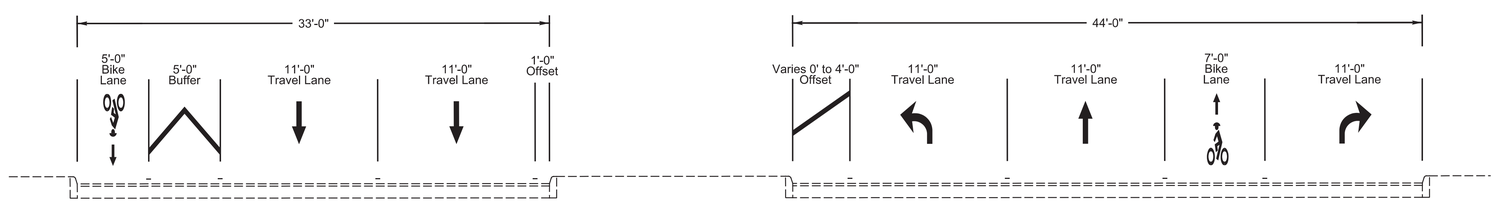
Sta. 1000+75.00 to Sta. 1019+75.00

Westover Hills Boulevard



Sta. 2002+25.00 to Sta. 2003+67.83

Sta. 2003+67.83 to Sta. 2005+80.22



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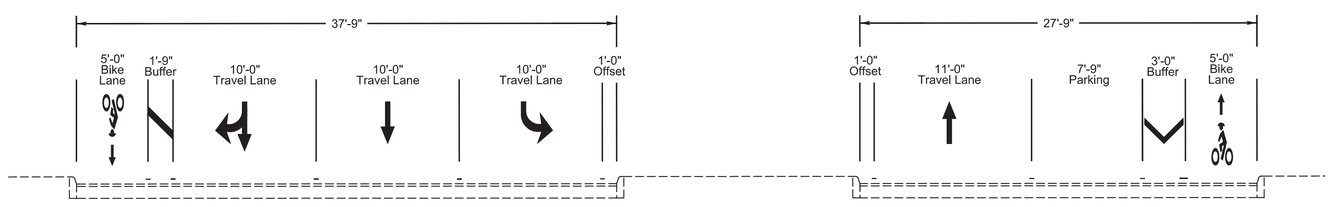

Sta. 2008+50.00 to Sta. 2010+65.46

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Typical Sections

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PROFESSIONAL ENGINEER

PROJECT 0161-XXX-XXX
SHEET NO. 1C(1)

DGN
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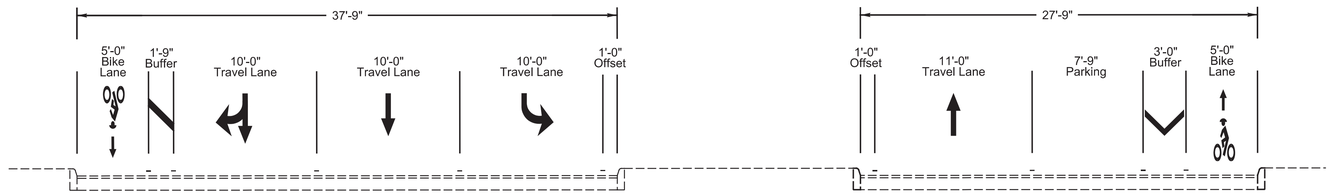
Westover Hills Boulevard

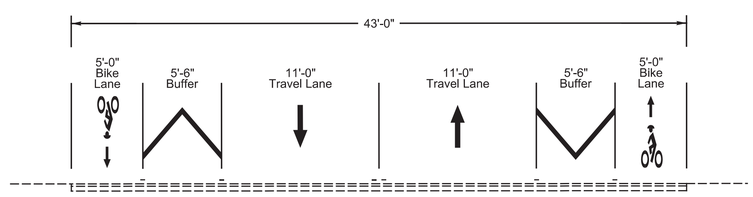


Sta. 2010+65.46 to Sta. 2011+85.58

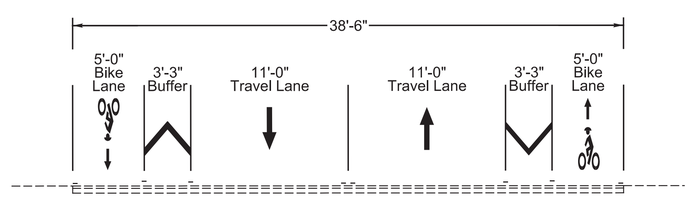
Sta. 2011+85.58 to Sta. 2032+75.00

Sta. 2032+75.00 to Sta. 2032+75.00

Park Drive



Sta. 3005+25.00 to Sta. 3014+75.00



Sta. 3014+75.00 to Sta. 3018+50.00

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PROJECT 0161-XXX-XXX
SHEET NO. 1C(2)

DGN
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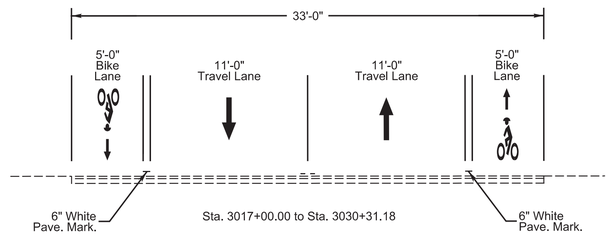
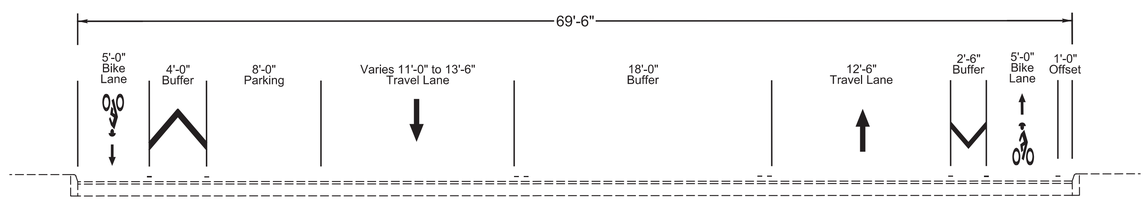
Park Drive



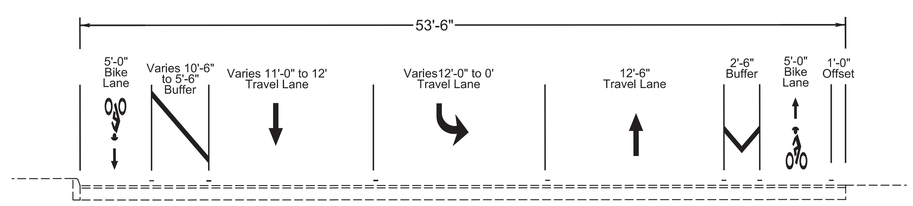
Sta. 3017+00.00 to Sta. 3030+31.18

Blanton Avenue

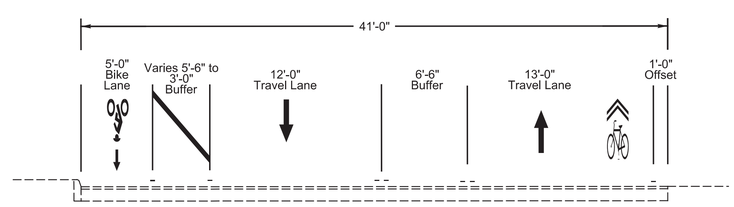
Sta. 4000+25.00 to Sta. 4006+75.00



Sta. 4006+75.000 to Sta. 4008+75.00



Sta. 4006+75.000 to Sta. 4008+75.00



Sta. 4008+75.00 to Sta. 4010+25.00

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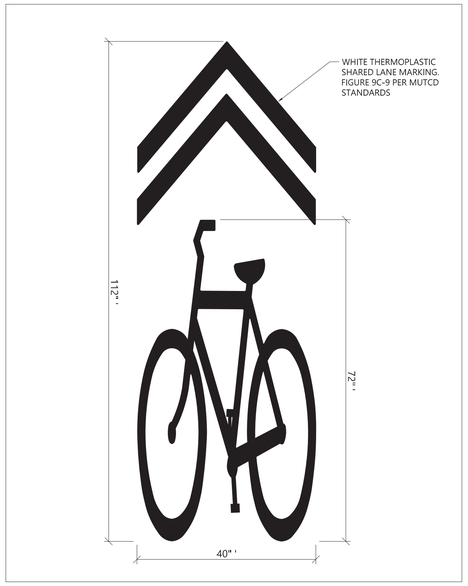
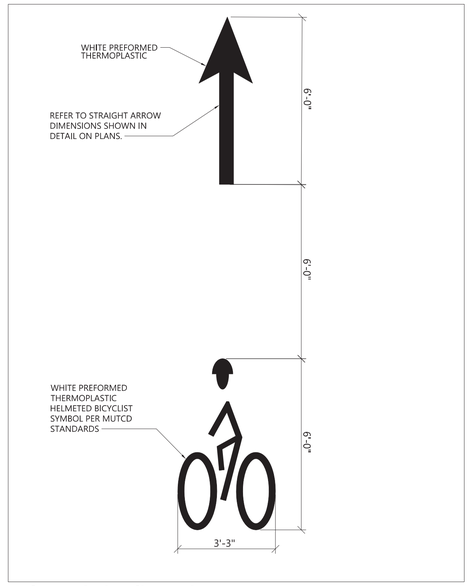


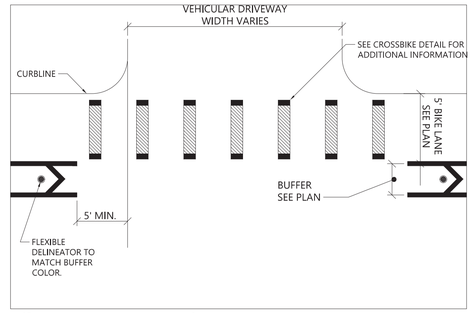
Shared Lane Marking

N.T.S. Source: VHB



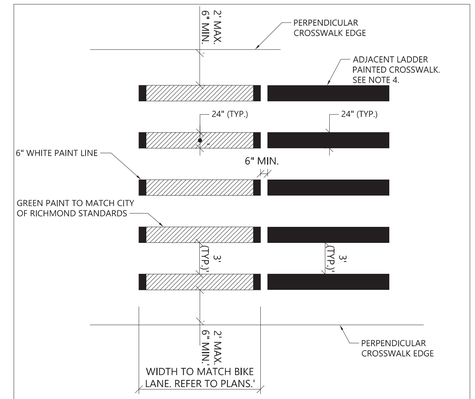
Helmeted Bicyclist and Arrow

N.T.S. Source: VHB



Bike Lane Street Crossing

N.T.S. Source: VHB

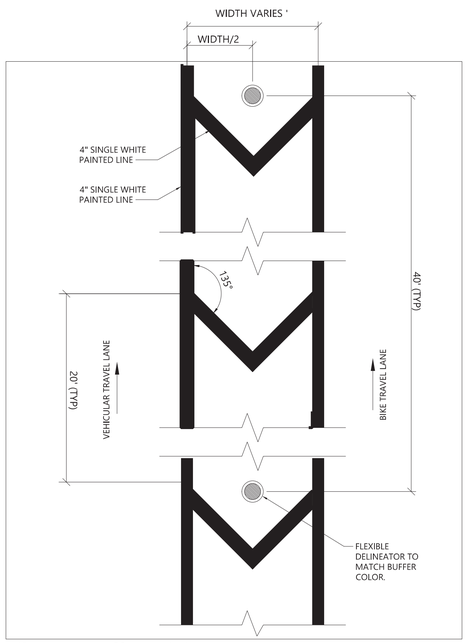


NOTES

1. TWENTY-FOUR INCH (24") LINES SHALL BE APPLIED IN ONE APPLICATION. NO COMBINATION OF LINES (TWO - 12 INCH LINES, ETC) WILL BE ACCEPTED.
2. LONGITUDINAL LINES TO BE PARALLEL TO CURBLINE.
3. ALL LINES TO BE THE SAME LENGTH AND PROPERLY ALIGNED.
4. WHERE ADJACENT TO LADDER PAINTED CROSSWALK, CROSSBIKE STRIPE THICKNESS AND SPACING SHALL MATCH CROSSWALK AND PROVIDE 6" SEPARATION MINIMUM BETWEEN CROSSBIKE AND CROSSWALK.

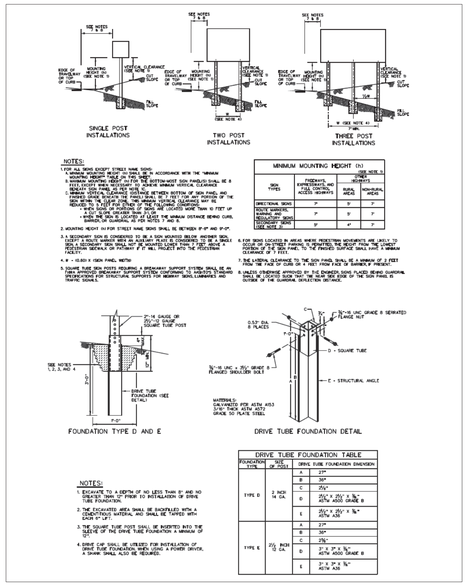
Crossbike

N.T.S. Source: VHB



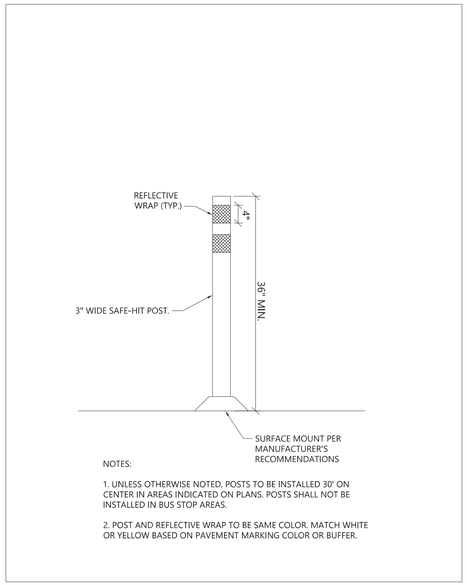
Bike Lane Buffer Striping

N.T.S. Source: VHB



Sign Post - VDOT STP-1 and Type-D & E Foundation

Source: VDOT 1321.10 & 1321.17



Vertical Flexible Delineator

N.T.S.

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Special Details

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JONATHAN L. BONGHI
Lic. No. 0402051585
PROFESSIONAL ENGINEER

VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT 0161-XXX-XXX
SHEET NO. ID

DGN
$DGNLEV

SIGN SCHEDULE

SIGN ASSEMBLY NO(s).	TEXT	MUTCD ST'D.	SIGN ASSEMBLY COMPONENTS: PANEL SIZE W	PANEL SIZE H	QTY.	SIGN PANEL AREA (S.F.): per Sign	per Assembly	SIGN STRUCTURE ST'D.	REMARKS
101, 102, 127, 208, 210, 211	STOP	R1-1	36"	36"	6	9.0	9.0	STP-1, 2" - 14 GA	FOUNDATION - TYPE D
103	LEFT TURN MAY USE TURN BOX	R4-11 (MOD)	30"	36"	1	7.5	7.5	STP-1, 2" - 14 GA	FOUNDATION - TYPE D
104, 108, 119, 121, 123		R7-3L (MOD)	12"	18"	5	1.5	1.5	STP-1, 2" - 14 GA	FOUNDATION - TYPE D
105, 111, 113, 115, 116, 117, 118, 125, 126, 209	TURNING VEHICLES TO	R10-15 (MOD)	30"	30"	10	6.25	6.25	STP-1, 2" - 14 GA	FOUNDATION - TYPE D
106, 120, 122, 124		R7-3R (MOD)	12"	18"	4	1.5	1.5	STP-1, 2" - 14 GA	FOUNDATION - TYPE D
107, 130, 201, 217	BEGIN BIKE LANE	M4-14 R3-17	24" 24"	12" 18"	4	2.0 3.0	5.0	STP-1, 2" - 14 GA	FOUNDATION - TYPE D
109, 133, 202, 213	END BIKE LANE	R3-17b R3-17	24" 24"	12" 18"	4	2.0 3.0	5.0	STP-1, 2" - 14 GA	FOUNDATION - TYPE D
110	BEGIN RIGHT TURN LANE YIELD TO BIKES	R4-4	36"	30"	1	7.5	7.5	STP-1, 2" - 14 GA	FOUNDATION - TYPE D
112	SPEED LIMIT 25	R2-1	30"	36"	1	7.5	7.5	STP-1, 2" - 14 GA	FOUNDATION - TYPE D
114	SPEED LIMIT 35	R2-1	30"	36"	1	7.5	7.5	STP-1, 2" - 14 GA	FOUNDATION - TYPE D

NOTES:

1) ALL SIGNS SHALL BE ORIENTATED AS SHOWN ON THE PLANS.
2) ALL ST'D.STP-1 STRUCTURES TO BE SINGLE POST UNLESS OTHERWISE NOTED.
3) SIGN COLOR COMBINATIONS SHALL BE IN ACCORDANCE WITH THE FHWA STANDARD HIGHWAY SIGNS BOOK AND THE 2011 VIRGINIA STANDARD HIGHWAY SIGNS BOOK OR AS NOTED IN THE PLANS.

SIGN SCHEDULE

SIGN ASSEMBLY NO(s).	TEXT	MUTCD ST'D.	SIGN ASSEMBLY COMPONENTS: PANEL SIZE W	PANEL SIZE H	QTY.	SIGN PANEL AREA (S.F.): per Sign	per Assembly	SIGN STRUCTURE ST'D.	REMARKS
128, 215	MERGE	W9-5a	30"	30"	2	6.25	6.25	STP-1, 2" - 14 GA	FOUNDATION - TYPE D
129, 203	TOLL BRIDGE AHEAD WEIGHT LIMIT 7500 LBS	M4-15 R12-VPI (MOD) R5-2 R12-1	24" 24" 24" 24"	12" 24" 24" 30"	2	2.0 4.0 4.0 5.0	15.0	STP-1, 2½" - 12 GA	FOUNDATION - TYPE E
131		W3-1	30"	30"	1	6.25	6.25	STP-1, 2" - 14 GA	FOUNDATION - TYPE D
132	11- 6"	W12-2	30"	30"	1	6.25	6.25	STP-1, 2" - 14 GA	FOUNDATION - TYPE D
204, 205, 206, 207	BIKE LANE	R3-17	24"	18"	4	3.0	3.0	STP-1, 2" - 14 GA	FOUNDATION - TYPE D
212	STOP ONLY	R1-1 R3-5L	36" 30"	36" 36"	1	9.0 6.25	15.25	STP-1, 2½" - 12 GA	FOUNDATION - TYPE E
214	Police Memorial Way STOP ONLY BLANTON AV	EXIST. EXIST. R1-1 R3-5R	EX EX 36" 30"	EX ED 36" 36"	1	EX EX 9.0 6.25	15.25	STP-1, 2½" - 12 GA	FOUNDATION - TYPE E

SIGNING LEGEND

100	DENOTES SIGN NUMBER	SPEED LIMIT 25	EXISTING SIGN TO REMAIN
	EXIST. GROUND MOUNTED SIGN SUPPORT	SPEED LIMIT 25	EXISTING SIGN TO BE REMOVED
	PROP. GROUND MOUNTED SIGN SUPPORT	SPEED LIMIT 25	PROPOSED SIGN

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Westover Hills Blvd - Park Drive
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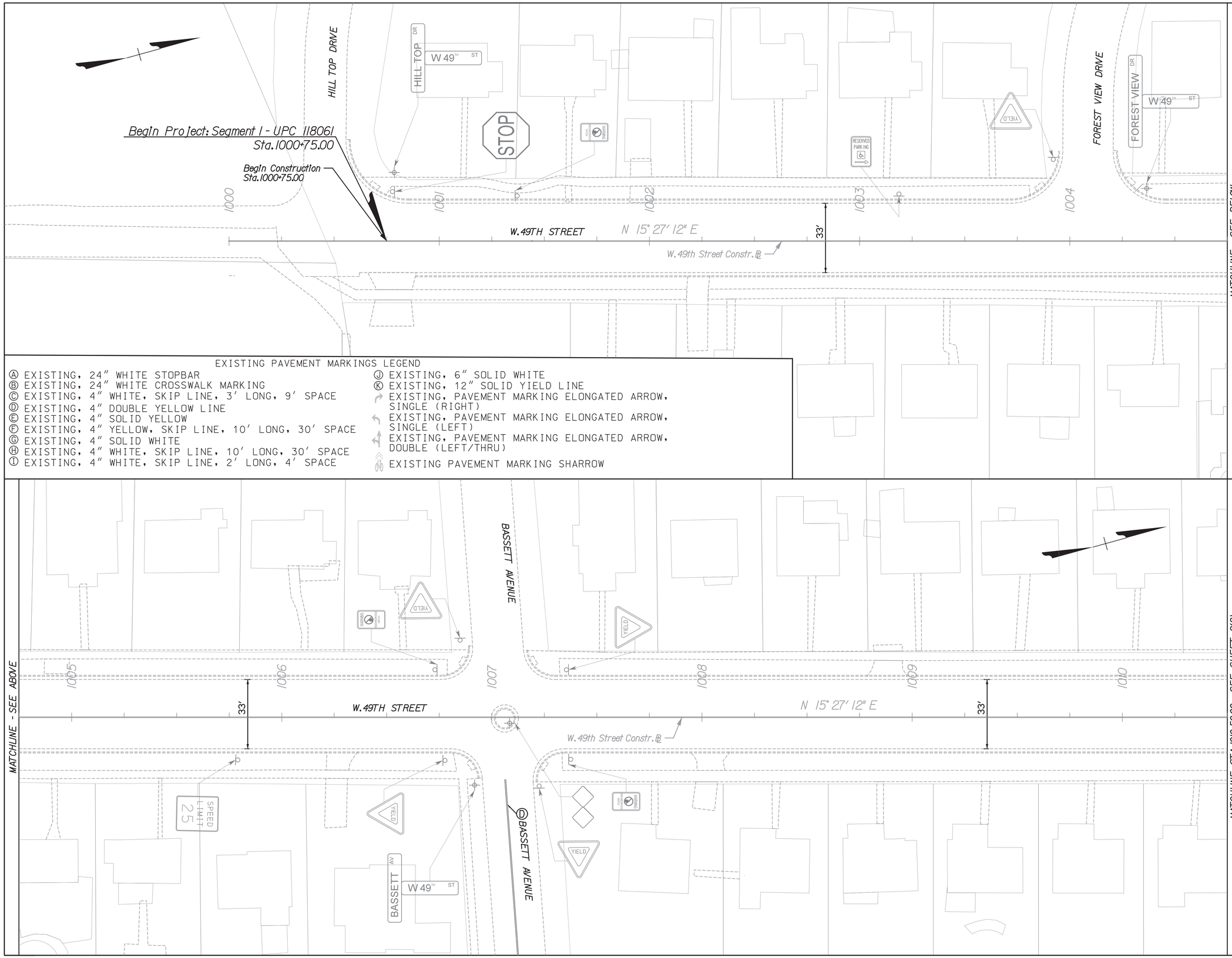
Proposed Sign Schedule And Sign Legend

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
Lic. No. 0402051585
PROFESSIONAL ENGINEER

VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT 0161-XXX-XXX
SHEET NO. 1E

DGN
$DGNLEV



EXISTING PAVEMENT MARKINGS LEGEND

- Ⓐ EXISTING, 24" WHITE STOPBAR
- Ⓑ EXISTING, 24" WHITE CROSSWALK MARKING
- Ⓒ EXISTING, 4" WHITE, SKIP LINE, 3' LONG, 9' SPACE
- Ⓓ EXISTING, 4" DOUBLE YELLOW LINE
- Ⓔ EXISTING, 4" SOLID YELLOW
- Ⓕ EXISTING, 4" YELLOW, SKIP LINE, 10' LONG, 30' SPACE
- Ⓖ EXISTING, 4" SOLID WHITE
- Ⓗ EXISTING, 4" WHITE, SKIP LINE, 10' LONG, 30' SPACE
- Ⓘ EXISTING, 4" WHITE, SKIP LINE, 2' LONG, 4' SPACE
- Ⓙ EXISTING, 6" SOLID WHITE
- Ⓚ EXISTING, 12" SOLID YIELD LINE
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (RIGHT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (LEFT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, DOUBLE (LEFT/THRU)
- EXISTING PAVEMENT MARKING SHARROW

vhb
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Existing Conditions Segment I

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PROJECT	SHEET NO.
0161-XXX-XXX	2(1)

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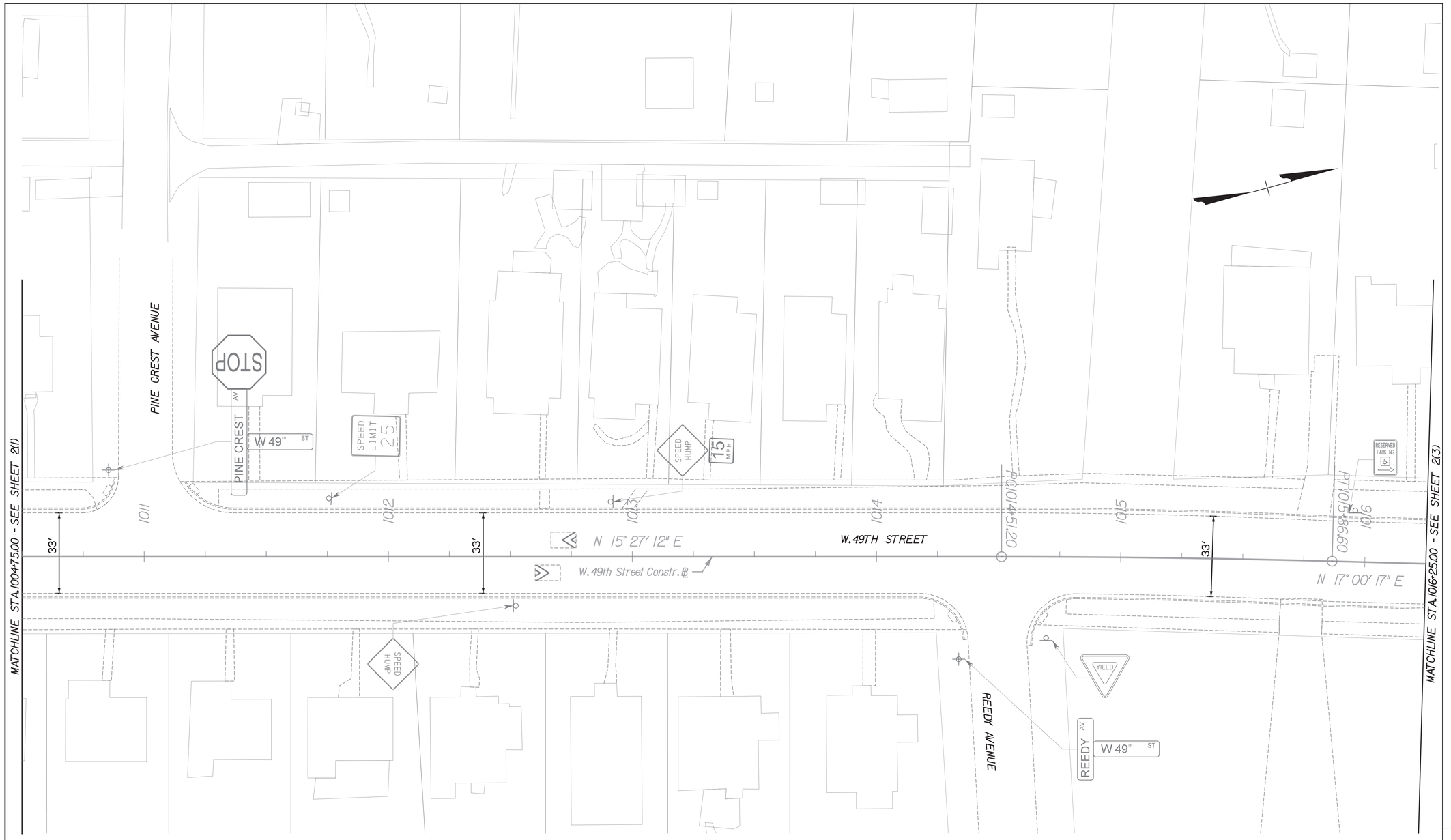

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0161-XXX-XXX	2(2)

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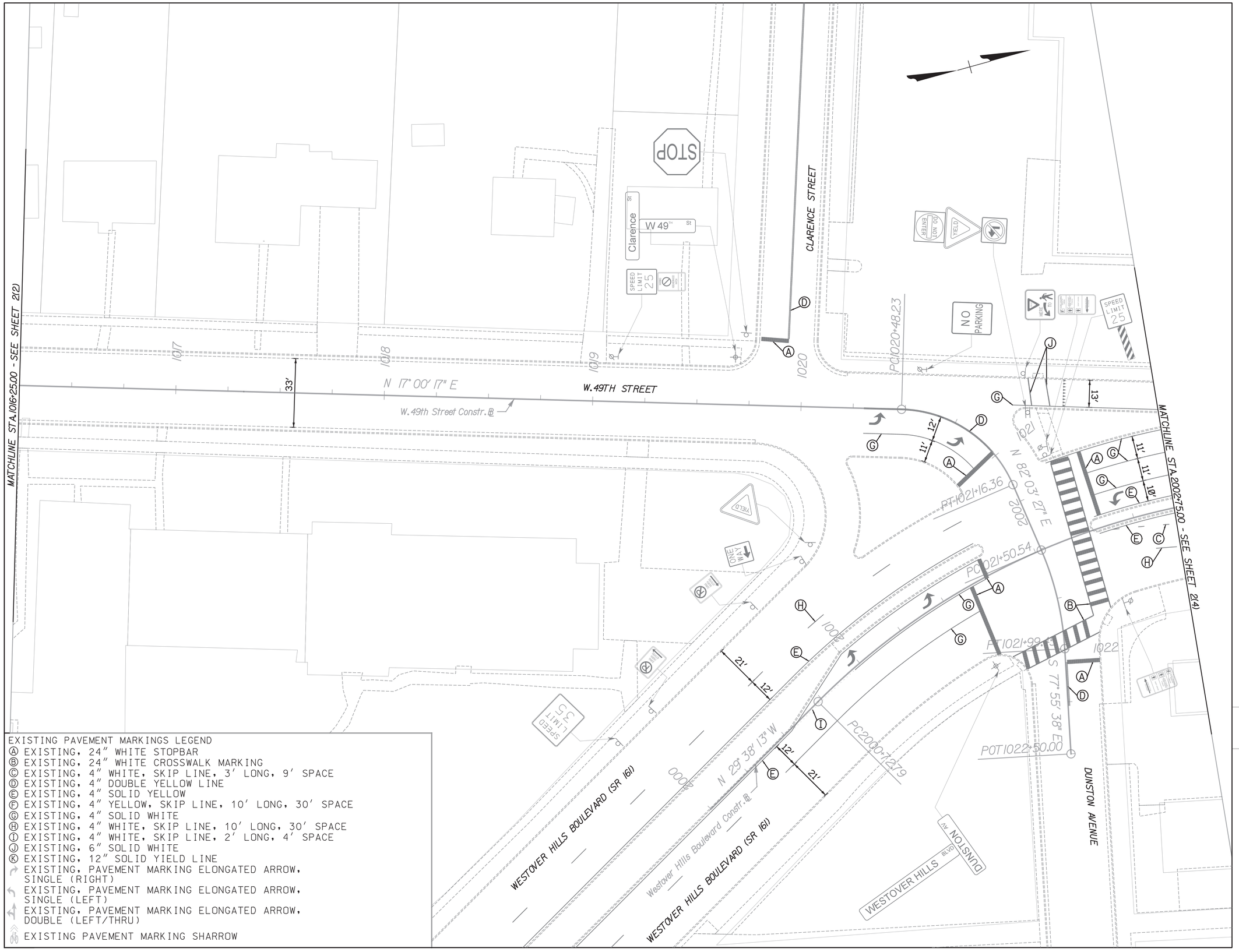

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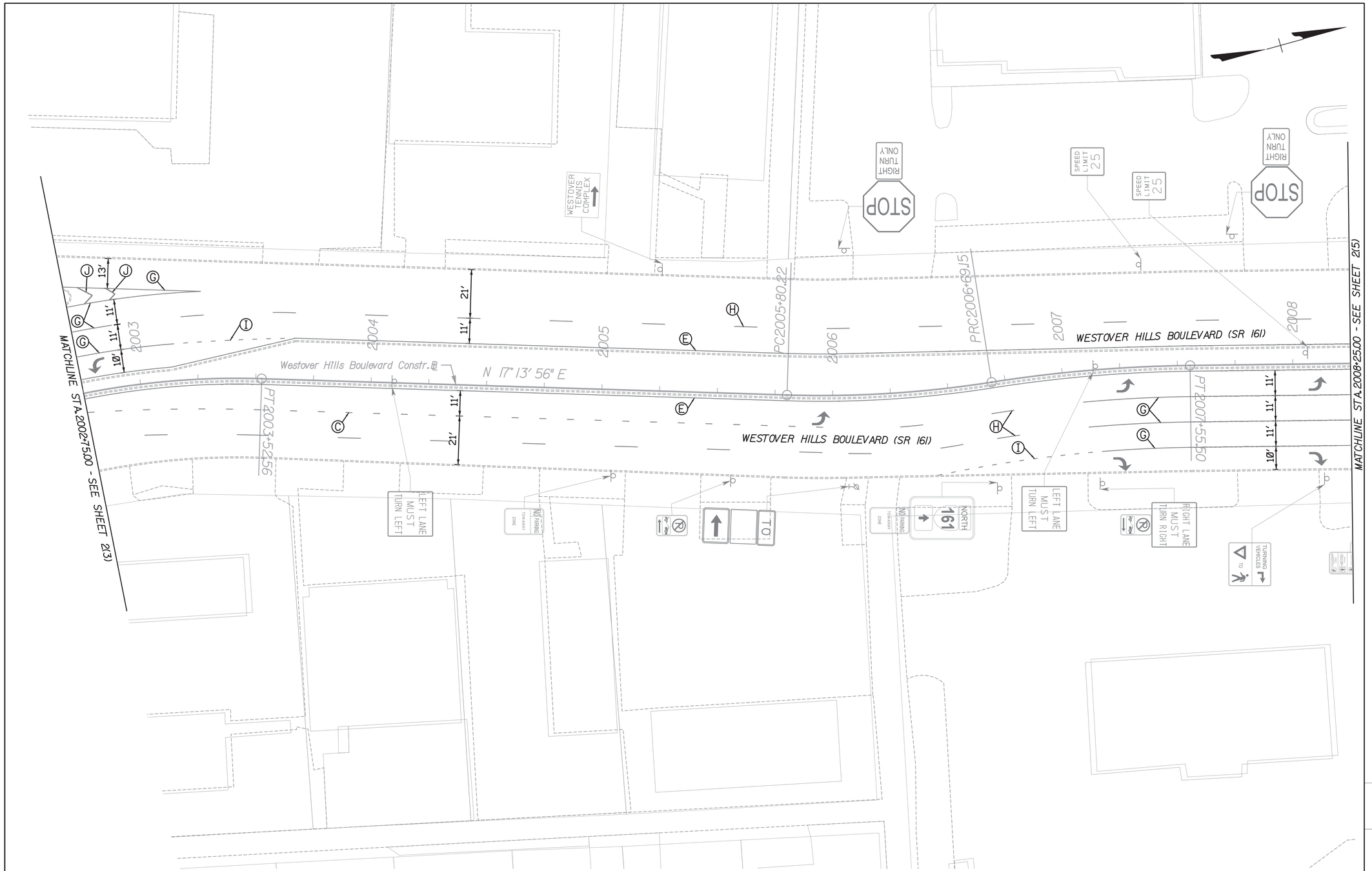
PROJECT	SHEET NO.
0161-XXX-XXX	2(3)



EXISTING PAVEMENT MARKINGS LEGEND

Ⓐ EXISTING, 24″ WHITE STOPBAR
Ⓑ EXISTING, 24″ WHITE CROSSWALK MARKING
Ⓒ EXISTING, 4″ WHITE, SKIP LINE, 3′ LONG, 9′ SPACE
Ⓓ EXISTING, 4″ DOUBLE YELLOW LINE
Ⓔ EXISTING, 4″ SOLID YELLOW
Ⓕ EXISTING, 4″ YELLOW, SKIP LINE, 10′ LONG, 30′ SPACE
Ⓖ EXISTING, 4″ SOLID WHITE
Ⓗ EXISTING, 4″ WHITE, SKIP LINE, 10′ LONG, 30′ SPACE
Ⓘ EXISTING, 4″ WHITE, SKIP LINE, 2′ LONG, 4′ SPACE
Ⓙ EXISTING, 6″ SOLID WHITE
Ⓚ EXISTING, 12″ SOLID YIELD LINE

EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (RIGHT)
EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (LEFT)
EXISTING, PAVEMENT MARKING ELONGATED ARROW, DOUBLE (LEFT/THRU)
EXISTING PAVEMENT MARKING SHARROW

DGN
$DGNLEV

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115 South 15th Street
Suite 200
Richmond, VA 23219
804.343.7100

SR 161 Bike Infrastructure / Roadway Conversion Project

Westover Hills Blvd - Park Drive
Richmond, Virginia

No.	Revision	Date	Appvd.

Designed by MRL
Checked by JLB
Issued for 90% Final Design
Date May 2023

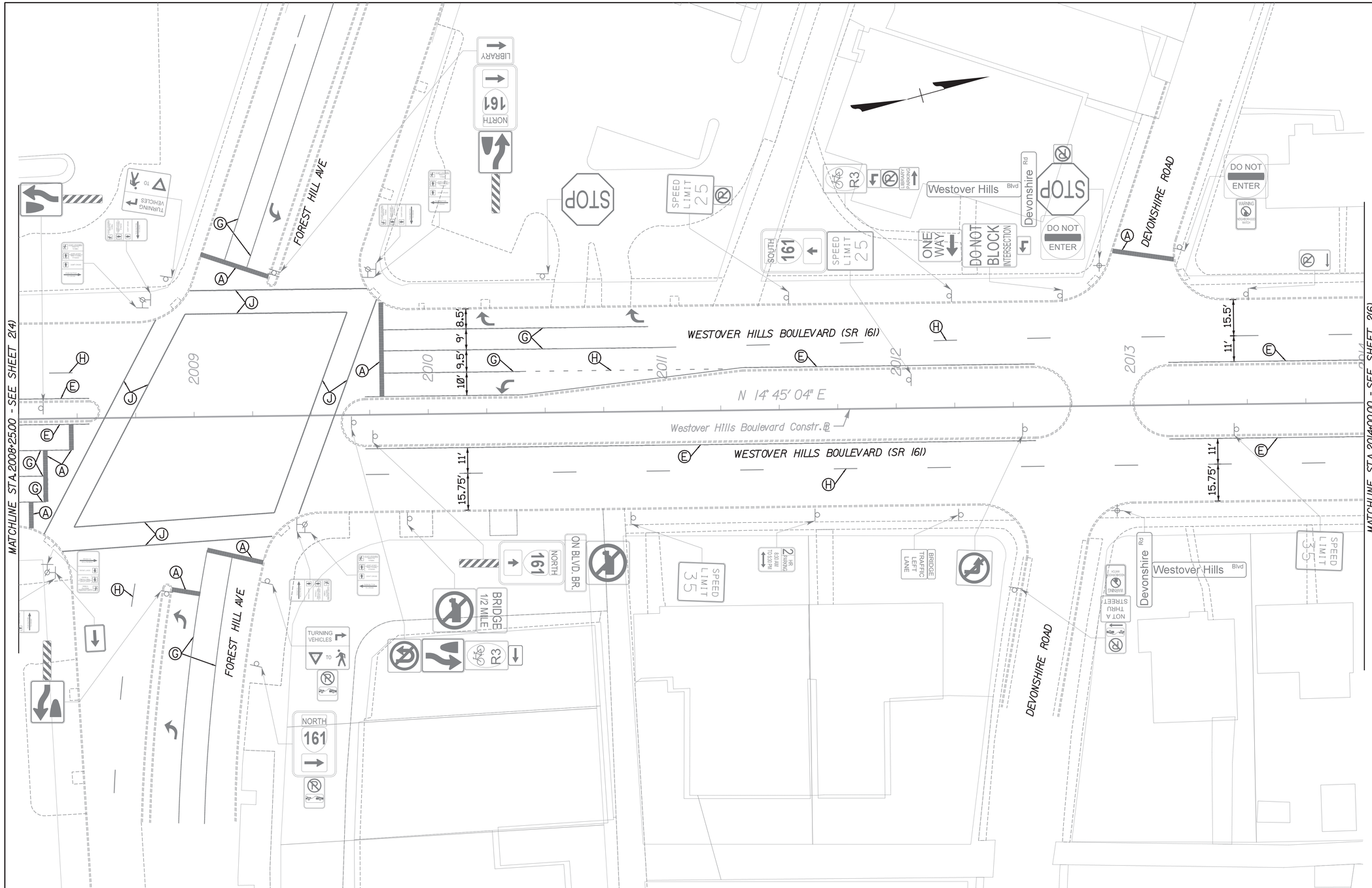
SCALE
0 20' 40'

Existing Conditions Segment I

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
Lic. No. 0402051585
PROFESSIONAL ENGINEER

VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT	SHEET NO.
0161-XXX-XXX	2(4)



EXISTING PAVEMENT MARKINGS LEGEND

- Ⓐ EXISTING, 24″ WHITE STOPBAR
- Ⓑ EXISTING, 24″ WHITE CROSSWALK MARKING
- Ⓒ EXISTING, 4″ WHITE, SKIP LINE, 3′ LONG, 9′ SPACE
- Ⓓ EXISTING, 4″ DOUBLE YELLOW LINE
- Ⓔ EXISTING, 4″ SOLID YELLOW
- Ⓕ EXISTING, 4″ YELLOW, SKIP LINE, 10′ LONG, 30′ SPACE
- Ⓖ EXISTING, 4″ SOLID WHITE
- Ⓗ EXISTING, 4″ WHITE, SKIP LINE, 10′ LONG, 30′ SPACE
- Ⓘ EXISTING, 4″ WHITE, SKIP LINE, 2′ LONG, 4′ SPACE
- Ⓙ EXISTING, 6″ SOLID WHITE
- Ⓚ EXISTING, 12″ SOLID YIELD LINE
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (RIGHT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (LEFT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, DOUBLE (LEFT/THRU)
- EXISTING PAVEMENT MARKING SHARROW

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SCALE
0 20' 40'

Existing Conditions Segment I

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JONATHAN L. BONGHI
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VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT 0161-XXX-XXX
SHEET NO. 2(5)

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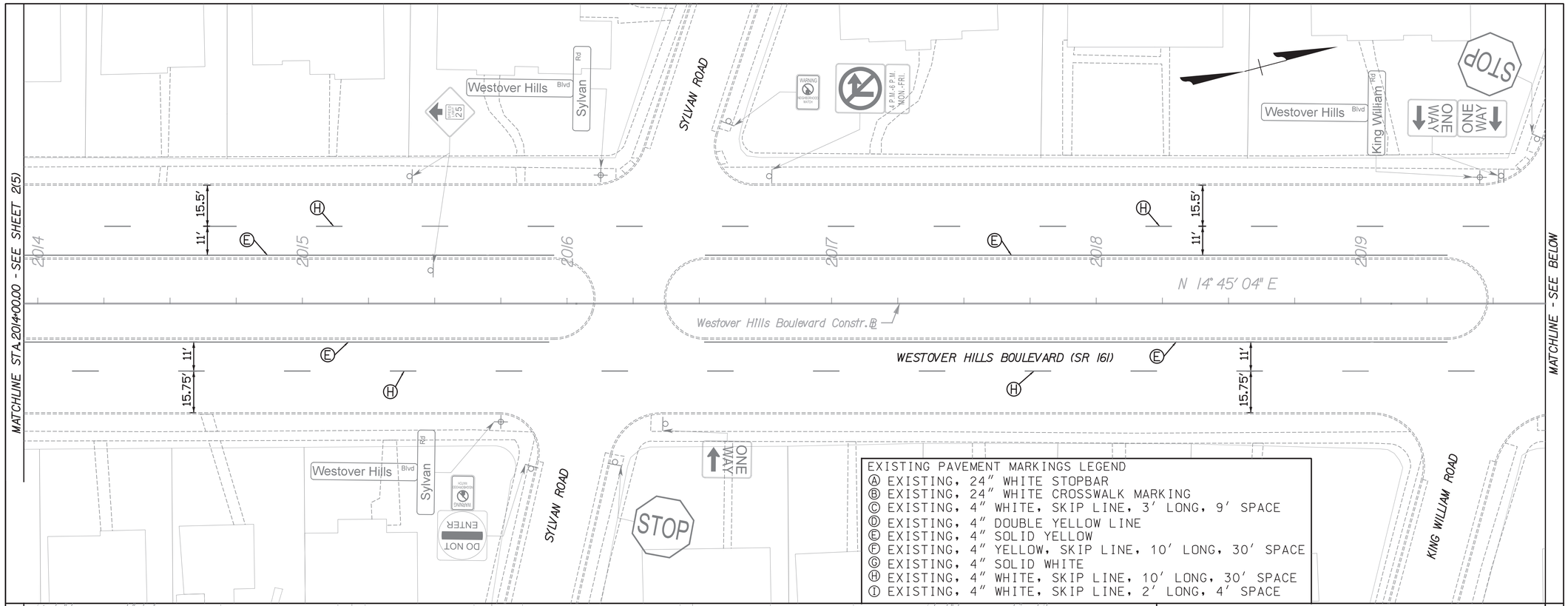

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SCALE 0 20' 40'

Existing Conditions Segment I

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
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VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT	SHEET NO.
0161-XXX-XXX	2(6)

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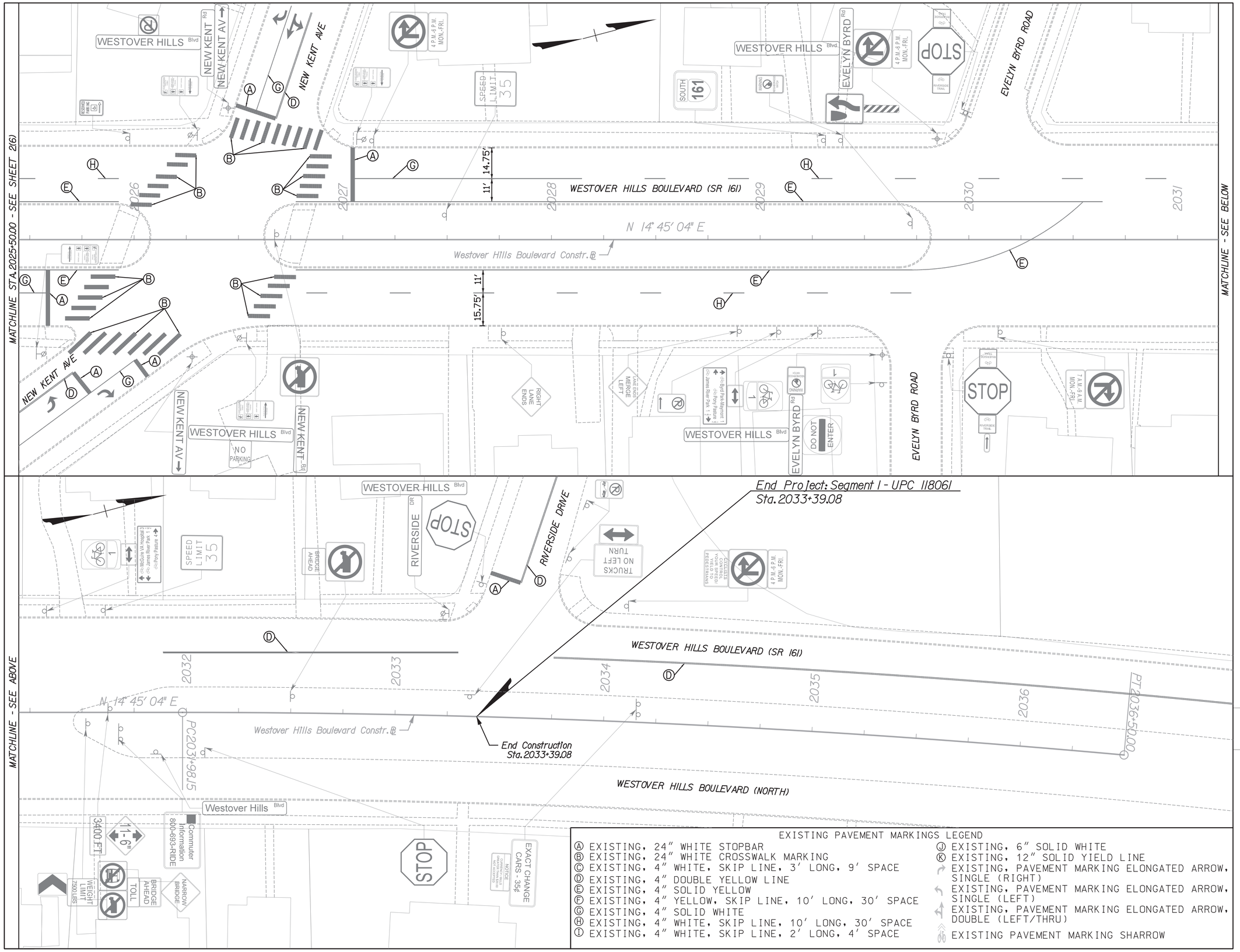

EXISTING PAVEMENT MARKINGS LEGEND

- Ⓐ EXISTING, 24" WHITE STOPBAR
- Ⓑ EXISTING, 24" WHITE CROSSWALK MARKING
- Ⓒ EXISTING, 4" WHITE, SKIP LINE, 3' LONG, 9' SPACE
- Ⓓ EXISTING, 4" DOUBLE YELLOW LINE
- Ⓔ EXISTING, 4" SOLID YELLOW
- Ⓕ EXISTING, 4" YELLOW, SKIP LINE, 10' LONG, 30' SPACE
- Ⓖ EXISTING, 4" SOLID WHITE
- Ⓗ EXISTING, 4" WHITE, SKIP LINE, 10' LONG, 30' SPACE
- Ⓘ EXISTING, 4" WHITE, SKIP LINE, 2' LONG, 4' SPACE
- Ⓙ EXISTING, 6" SOLID WHITE
- Ⓚ EXISTING, 12" SOLID YIELD LINE
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (RIGHT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (LEFT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, DOUBLE (LEFT/THRU)
- EXISTING PAVEMENT MARKING SHARROW

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SCALE 0 20' 40'

Existing Conditions Segment I

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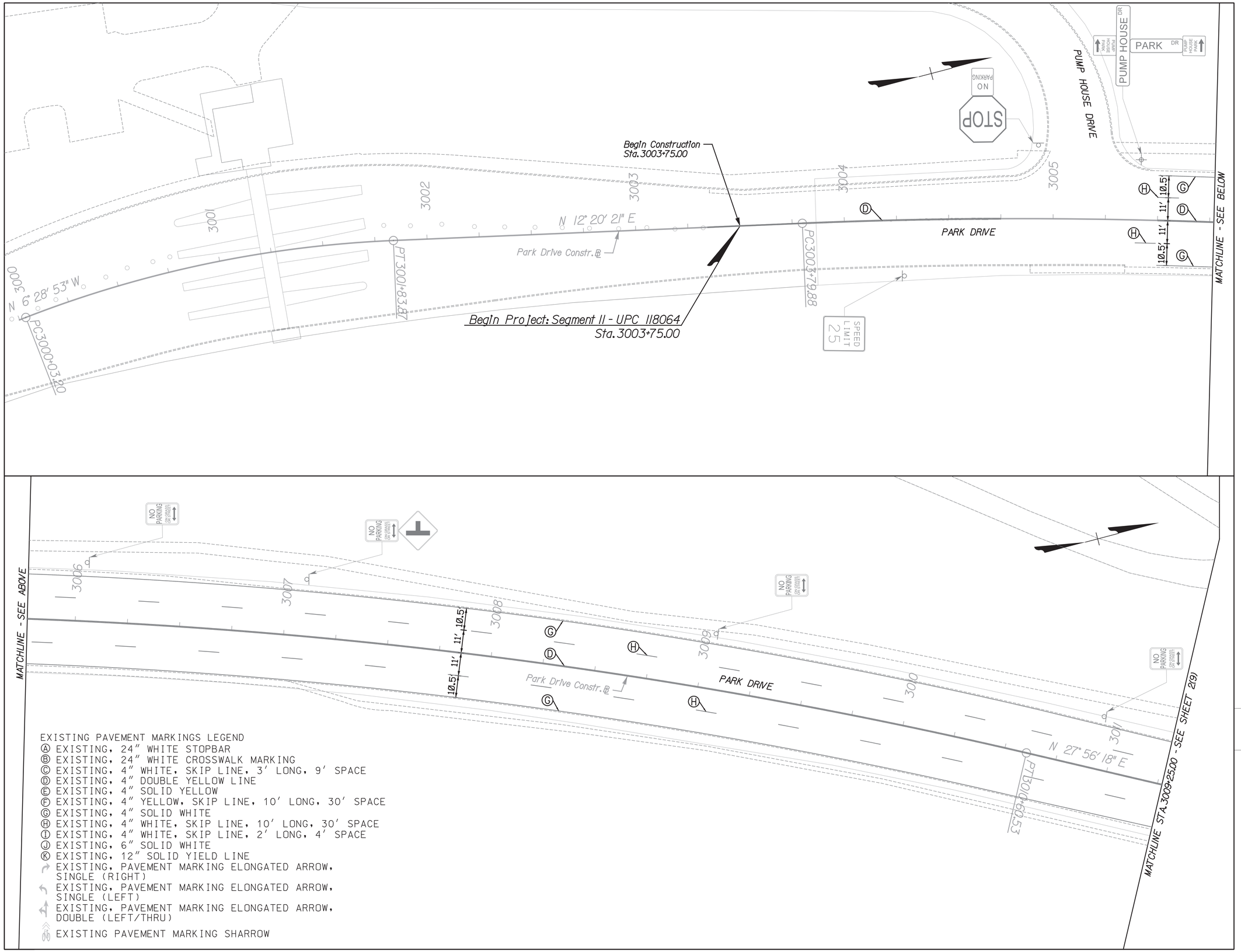
PROJECT	SHEET NO.
0161-XXX-XXX	2(7)



EXISTING PAVEMENT MARKINGS LEGEND

- Ⓐ EXISTING, 24" WHITE STOPBAR
- Ⓑ EXISTING, 24" WHITE CROSSWALK MARKING
- Ⓒ EXISTING, 4" WHITE, SKIP LINE, 3' LONG, 9' SPACE
- Ⓓ EXISTING, 4" DOUBLE YELLOW LINE
- Ⓔ EXISTING, 4" SOLID YELLOW
- Ⓕ EXISTING, 4" YELLOW, SKIP LINE, 10' LONG, 30' SPACE
- Ⓖ EXISTING, 4" SOLID WHITE
- Ⓗ EXISTING, 4" WHITE, SKIP LINE, 10' LONG, 30' SPACE
- Ⓘ EXISTING, 4" WHITE, SKIP LINE, 2' LONG, 4' SPACE
- Ⓙ EXISTING, 6" SOLID WHITE
- Ⓚ EXISTING, 12" SOLID YIELD LINE
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (RIGHT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (LEFT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, DOUBLE (LEFT/THRU)
- EXISTING PAVEMENT MARKING SHARROW

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Richmond, Virginia

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SCALE
0 20' 40'

Existing Conditions Segment II

COMMONWEALTH OF VIRGINIA
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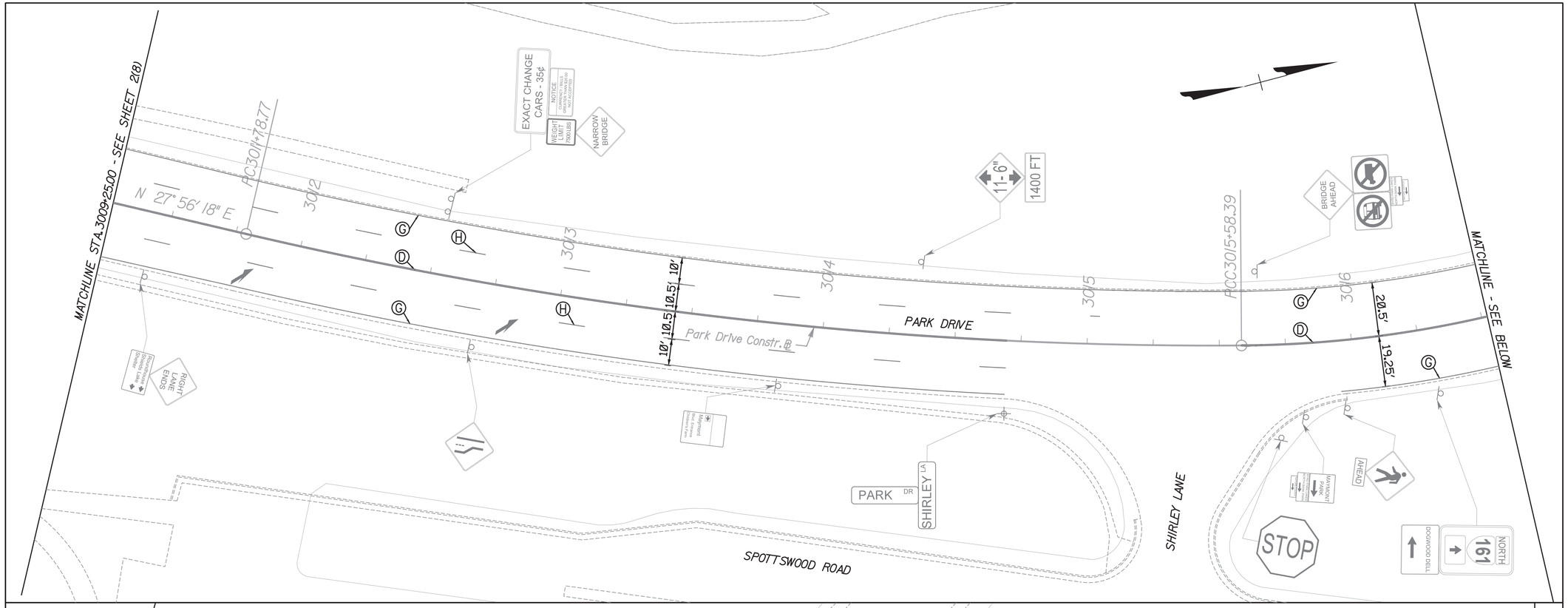
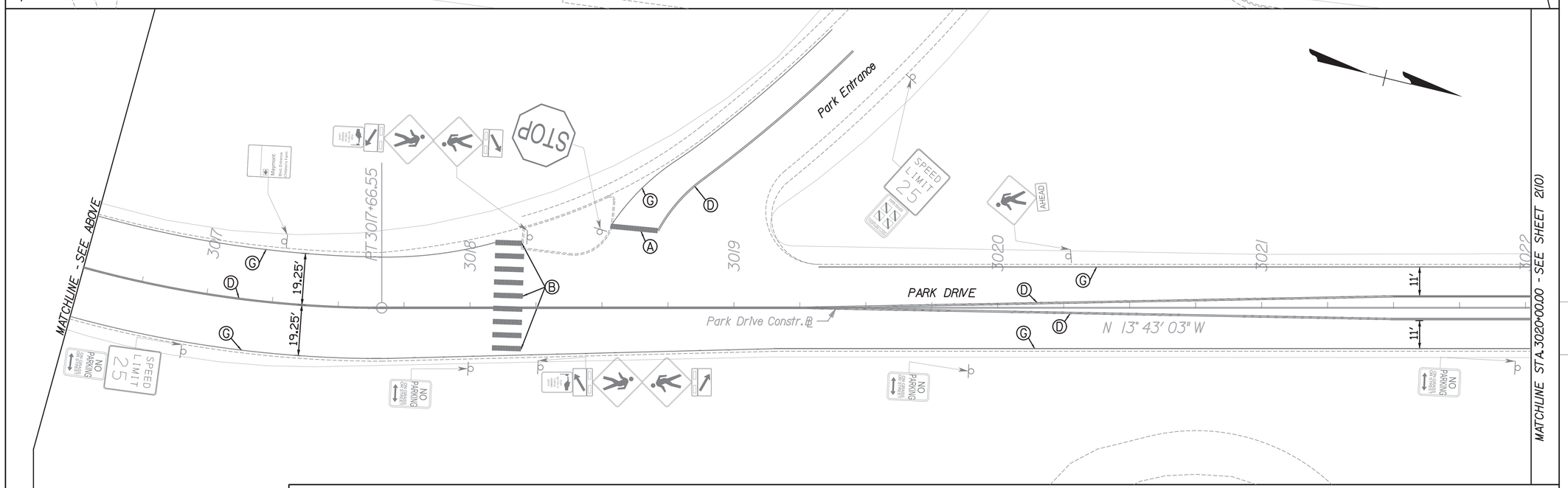
VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT	SHEET NO.
0161-XXX-XXX	2(8)





EXISTING PAVEMENT MARKINGS LEGEND

- Ⓐ EXISTING, 24" WHITE STOPBAR
- Ⓑ EXISTING, 24" WHITE CROSSWALK MARKING
- Ⓒ EXISTING, 4" WHITE, SKIP LINE, 3' LONG, 9' SPACE
- Ⓓ EXISTING, 4" DOUBLE YELLOW LINE
- Ⓔ EXISTING, 4" SOLID YELLOW
- Ⓕ EXISTING, 4" YELLOW, SKIP LINE, 10' LONG, 30' SPACE
- Ⓖ EXISTING, 4" SOLID WHITE
- Ⓗ EXISTING, 4" WHITE, SKIP LINE, 10' LONG, 30' SPACE
- Ⓘ EXISTING, 4" WHITE, SKIP LINE, 2' LONG, 4' SPACE
- Ⓙ EXISTING, 6" SOLID WHITE
- Ⓚ EXISTING, 12" SOLID YIELD LINE
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (RIGHT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (LEFT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, DOUBLE (LEFT/THRU)
- EXISTING PAVEMENT MARKING SHARROW

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SCALE 0 20' 40'

Existing Conditions Segment II

COMMONWEALTH OF VIRGINIA
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Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT 0161-XXX-XXX
SHEET NO. 2(9)

DGN
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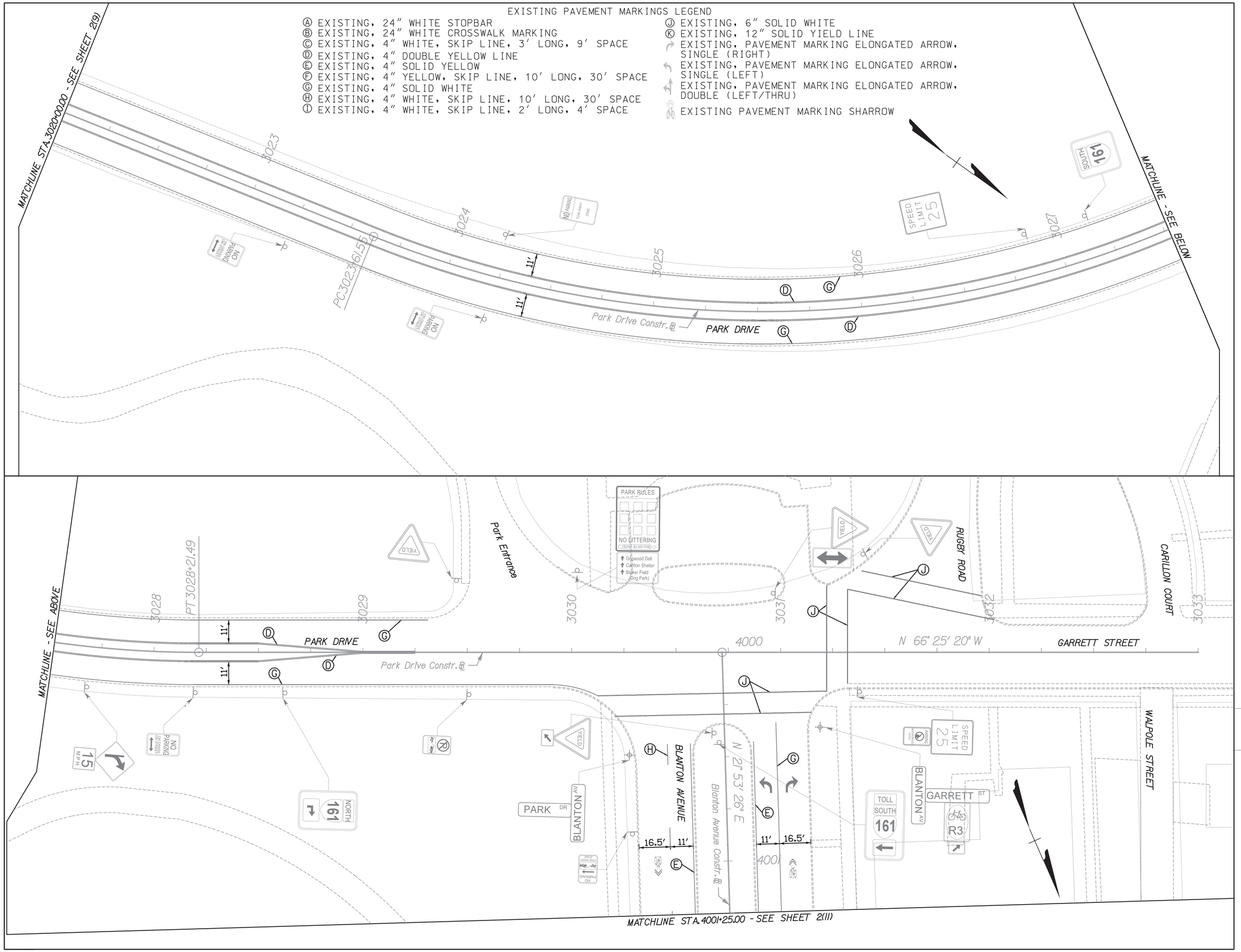
EXISTING PAVEMENT MARKINGS LEGEND

- Ⓐ EXISTING, 24″ WHITE STOPBAR
- Ⓑ EXISTING, 24″ WHITE CROSSWALK MARKING
- Ⓒ EXISTING, 4″ WHITE, SKIP LINE, 3′ LONG, 9′ SPACE
- Ⓓ EXISTING, 4″ DOUBLE YELLOW LINE
- Ⓔ EXISTING, 4″ SOLID YELLOW
- Ⓕ EXISTING, 4″ YELLOW, SKIP LINE, 10′ LONG, 30′ SPACE
- Ⓖ EXISTING, 4″ SOLID WHITE
- Ⓗ EXISTING, 4″ WHITE, SKIP LINE, 10′ LONG, 30′ SPACE
- Ⓘ EXISTING, 4″ WHITE, SKIP LINE, 2′ LONG, 4′ SPACE
- Ⓙ EXISTING, 6″ SOLID WHITE
- Ⓚ EXISTING, 12″ SOLID YIELD LINE
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (RIGHT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (LEFT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, DOUBLE (LEFT/THRU)
- EXISTING PAVEMENT MARKING SHARROW



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Richmond, Virginia

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SCALE
0 20′ 40′

Existing Conditions Segment II

COMMONWEALTH OF VIRGINIA
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PROFESSIONAL ENGINEER

VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT	SHEET NO.
0161-XXX-XXX	2(10)

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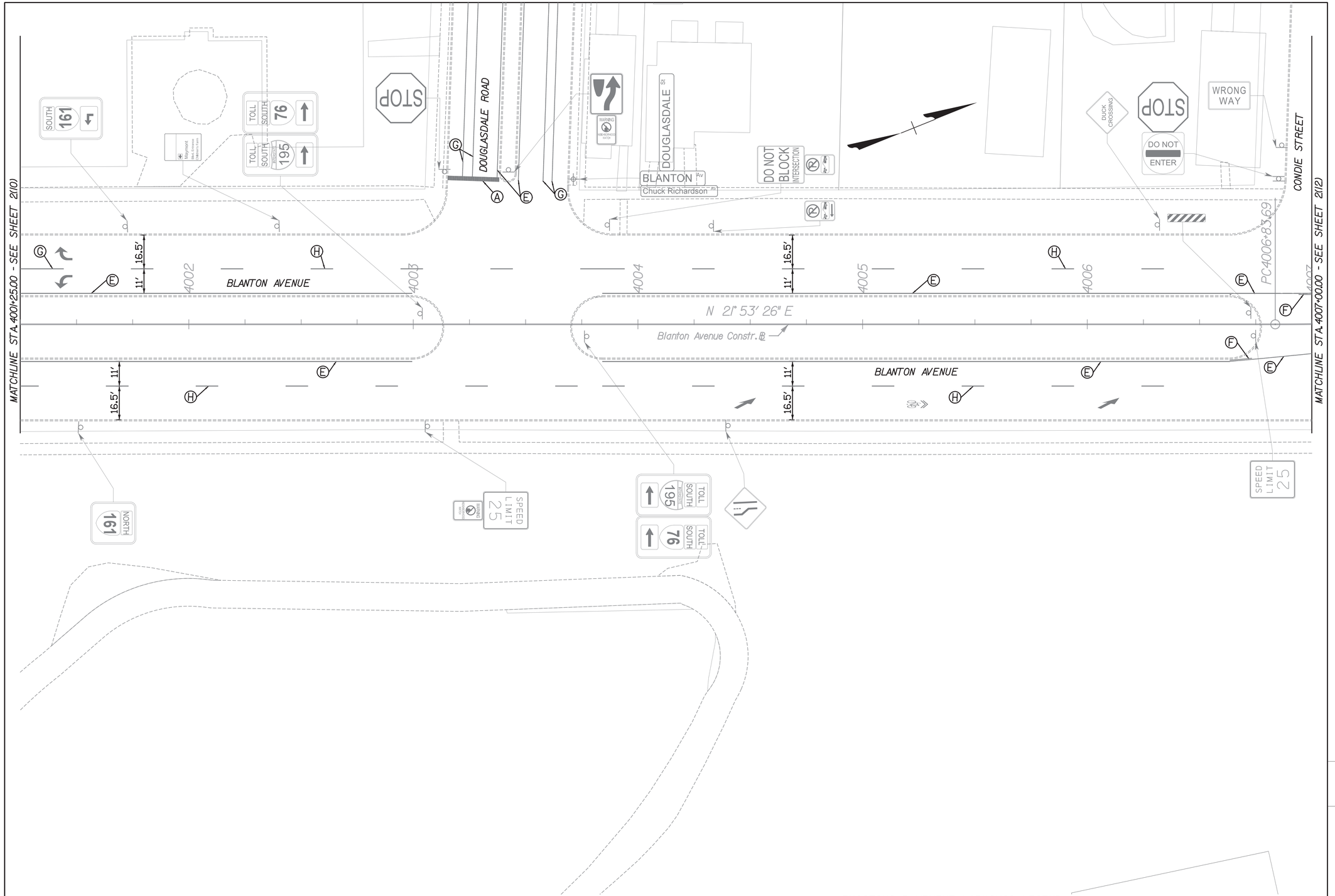

EXISTING PAVEMENT MARKINGS LEGEND

- Ⓐ EXISTING, 24″ WHITE STOPBAR
- Ⓑ EXISTING, 24″ WHITE CROSSWALK MARKING
- Ⓒ EXISTING, 4″ WHITE, SKIP LINE, 3′ LONG, 9′ SPACE
- Ⓓ EXISTING, 4″ DOUBLE YELLOW LINE
- Ⓔ EXISTING, 4″ SOLID YELLOW
- Ⓕ EXISTING, 4″ YELLOW, SKIP LINE, 10′ LONG, 30′ SPACE
- Ⓖ EXISTING, 4″ SOLID WHITE
- Ⓗ EXISTING, 4″ WHITE, SKIP LINE, 10′ LONG, 30′ SPACE
- Ⓘ EXISTING, 4″ WHITE, SKIP LINE, 2′ LONG, 4′ SPACE
- Ⓙ EXISTING, 6″ SOLID WHITE
- Ⓚ EXISTING, 12″ SOLID YIELD LINE
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (RIGHT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (LEFT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, DOUBLE (LEFT/THRU)
- EXISTING PAVEMENT MARKING SHARROW

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SR 161 Bike Infrastructure / Roadway Conversion Project

Westover Hills Blvd - Park Drive
Richmond, Virginia

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SCALE
0 20' 40'

Existing Conditions Segment II

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
Lic. No. 0402051585
PROFESSIONAL ENGINEER

VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT	SHEET NO.
0161-XXX-XXX	2(11)

DGN
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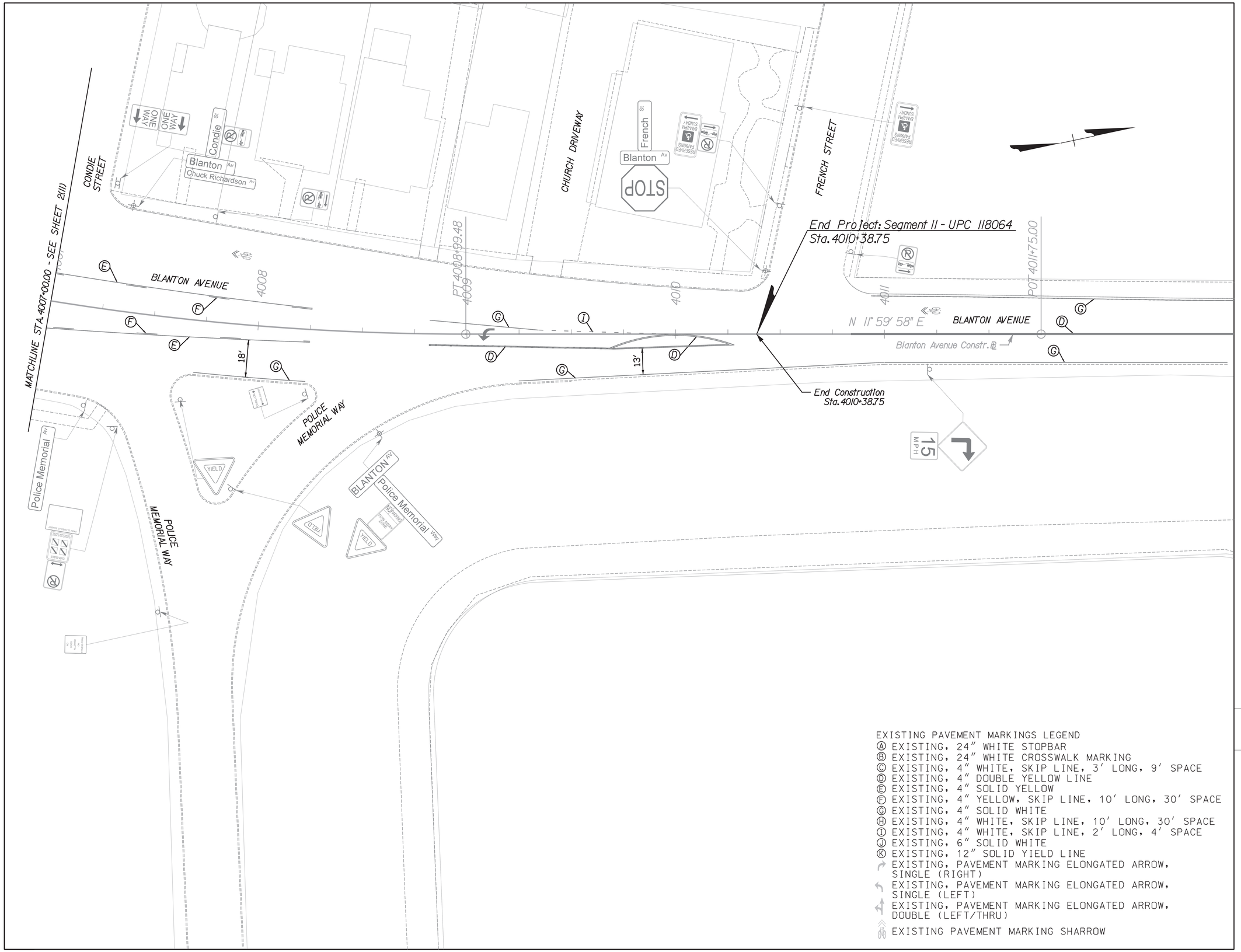

EXISTING PAVEMENT MARKINGS LEGEND

- Ⓐ EXISTING, 24″ WHITE STOPBAR
- Ⓑ EXISTING, 24″ WHITE CROSSWALK MARKING
- Ⓒ EXISTING, 4″ WHITE, SKIP LINE, 3′ LONG, 9′ SPACE
- Ⓓ EXISTING, 4″ DOUBLE YELLOW LINE
- Ⓔ EXISTING, 4″ SOLID YELLOW
- Ⓕ EXISTING, 4″ YELLOW, SKIP LINE, 10′ LONG, 30′ SPACE
- Ⓖ EXISTING, 4″ SOLID WHITE
- Ⓗ EXISTING, 4″ WHITE, SKIP LINE, 10′ LONG, 30′ SPACE
- Ⓘ EXISTING, 4″ WHITE, SKIP LINE, 2′ LONG, 4′ SPACE
- Ⓙ EXISTING, 6″ SOLID WHITE
- Ⓚ EXISTING, 12″ SOLID YIELD LINE
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (RIGHT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, SINGLE (LEFT)
- EXISTING, PAVEMENT MARKING ELONGATED ARROW, DOUBLE (LEFT/THRU)
- EXISTING PAVEMENT MARKING SHARROW

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SCALE
0 20' 40'

Existing Conditions Segment II

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
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VHB, Inc
Richmond, Virginia
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PROJECT	SHEET NO.
0161-XXX-XXX	2(12)

DGN
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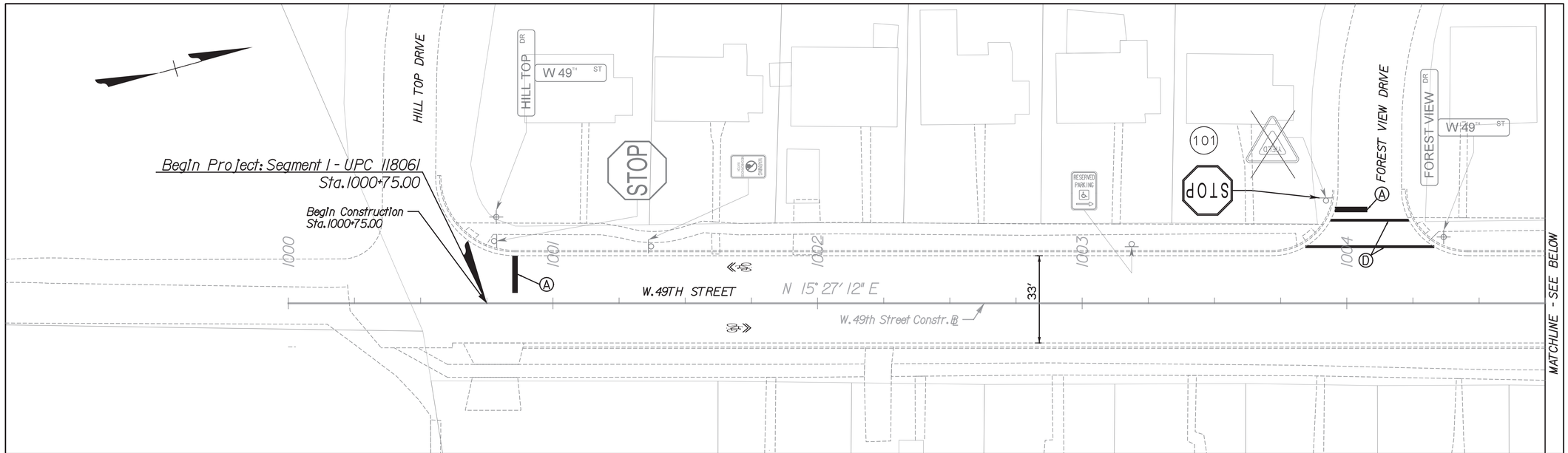
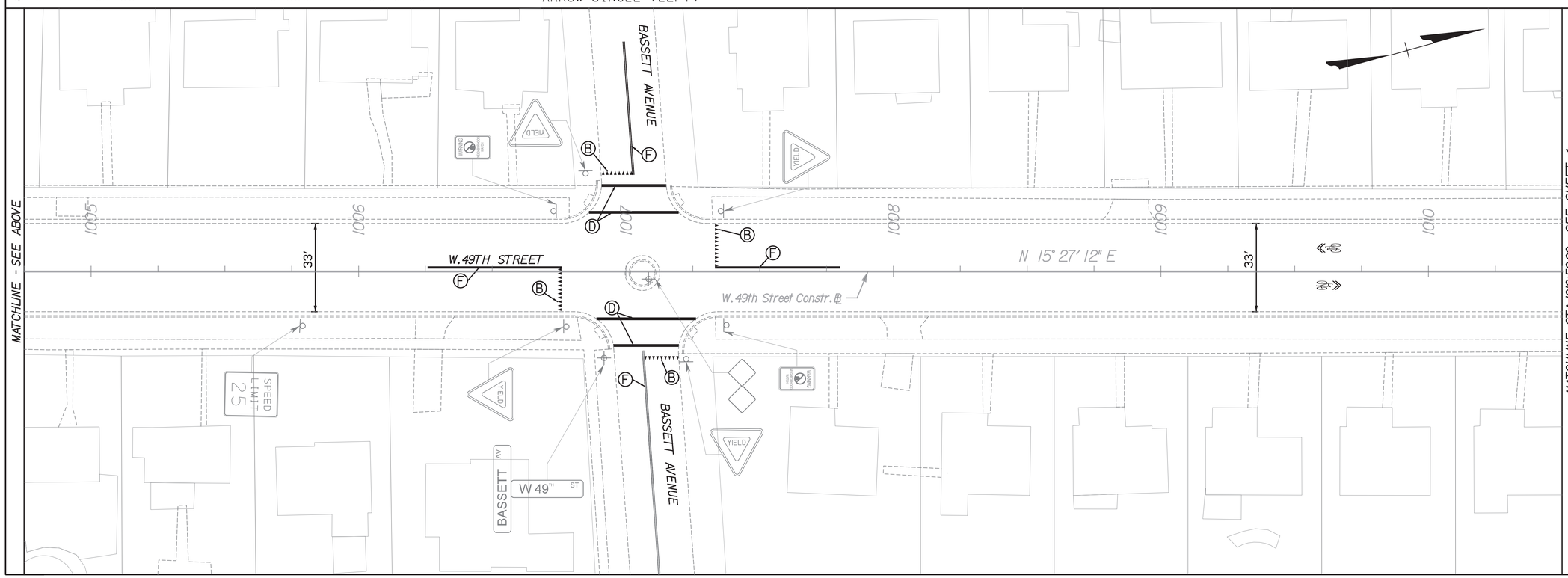


PROPOSED PAVEMENT MARKINGS LEGEND

- Ⓐ TYPE B, CLASS II, 24" SOLID WHITE
- Ⓑ TYPE B, CLASS I, 12" WHITE, YIELD LINE
- Ⓒ TYPE B, CLASS II, 24" SOLID YELLOW HATCHING, 20' SPACING
- Ⓓ TYPE B, CLASS I, 12" SOLID WHITE
- Ⓔ TYPE B, CLASS I, 4" SOLID WHITE CHEVRONS, 20' SPACING
- Ⓕ TYPE B, CLASS I, 4" SOLID DOUBLE YELLOW
- Ⓖ TYPE B, CLASS I, 4" SOLID YELLOW
- Ⓗ TYPE B, CLASS I, 4" SOLID WHITE
- Ⓘ TYPE B, CLASS I, 4" WHITE, SKIP LINE, 10' LONG, 30' SPACE
- Ⓙ TYPE B, CLASS I, 4" WHITE, DASHED LINE, 2' LONG, 6' SPACE
- Ⓚ TYPE B, CLASS II, PAVEMENT MARKING MESSAGE "ONLY"
- Ⓛ TYPE B, CLASS III (MMA), 24" CROSS BIKE, 3' SPACE
- Ⓜ TYPE B, CLASS I, 4" WHITE DASHED LINE, 3' LONG, 9' SPACE
- Ⓝ TYPE B, CLASS I, 6" SOLID WHITE
- Ⓞ TYPE B, CLASS I, 4" SOLID WHITE HATCH, 20' SPACING
- Ⓟ TYPE B, CLASS II, 24" SOLID WHITE HATCH, 20' SPACING
- Ⓠ TYPE B, CLASS I, 4" SOLID YELLOW HATCH, 20' SPACING
- Ⓡ TYPE B, CLASS I, 4" YELLOW, SKIP LINE, 10' LONG, 30' SPACE
- Ⓢ TYPE B, CLASS I, 4" YELLOW, DASHED LINE, 2' LONG, 6' SPACE
- (EX) EXISTING PAVEMENT MARKING
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (RIGHT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (LEFT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (MERGE)
- TYPE B, CLASS II, PAVEMENT MARKING BICYCLE LANE ARROW (THRU) AND HELMETED BICYCLIST
- TWO-STAGE TURN BOX, SEE DETAIL
- TYPE B, CLASS II, PAVEMENT MARKING SHARROW
- DENOTES ALLOWABLE PARKING AREA
- WHITE, FLEXIBLE POST DELINEATOR, 40' SPACING



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SCALE 0 20' 40'

Proposed Conditions Segment I

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
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PROFESSIONAL ENGINEER

PROJECT 0161-XXX-XXX
SHEET NO. 3

DGN
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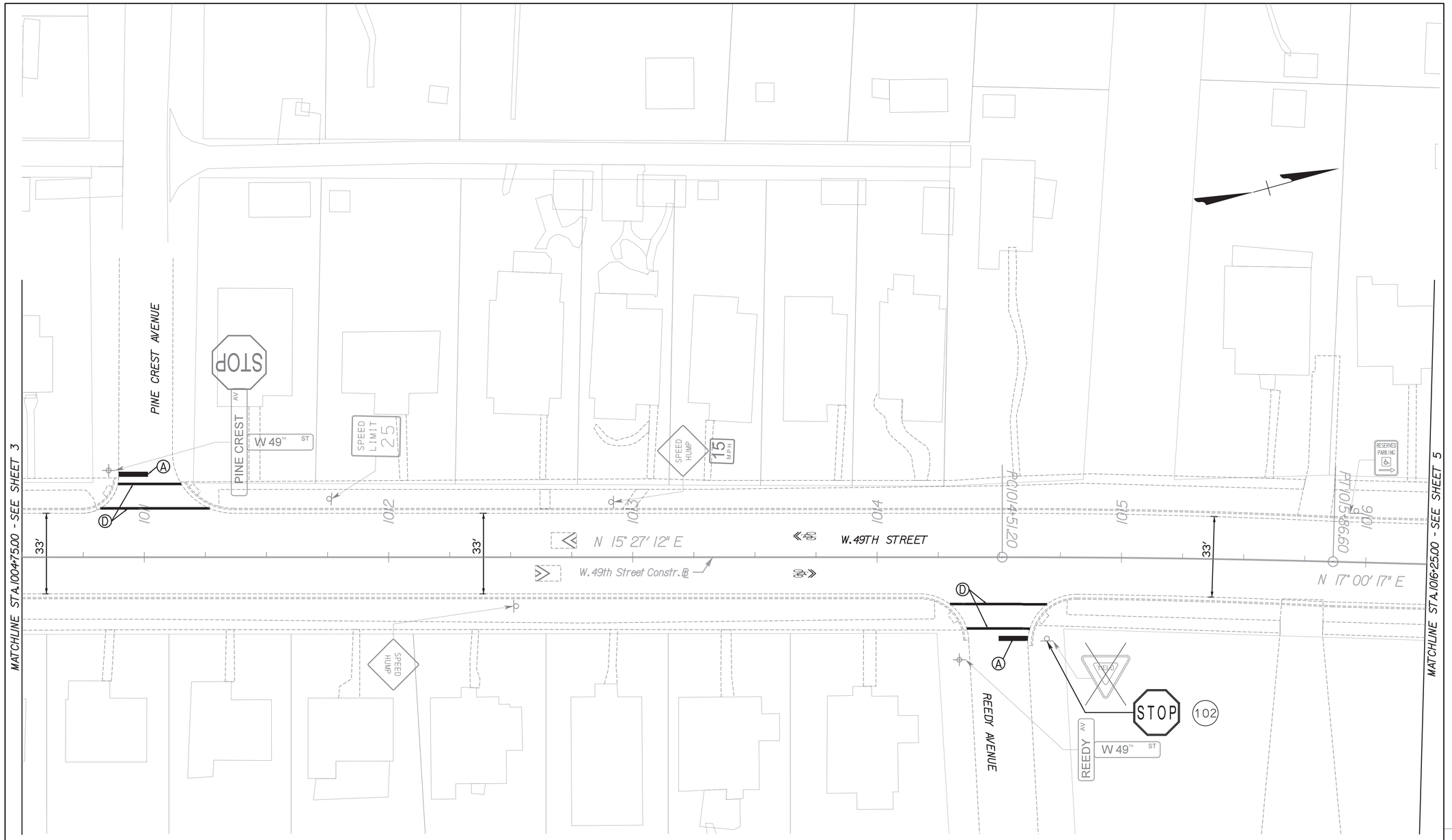

PROPOSED PAVEMENT MARKINGS LEGEND

- Ⓐ TYPE B, CLASS II, 24" SOLID WHITE
- Ⓑ TYPE B, CLASS I, 12" WHITE, YIELD LINE
- Ⓒ TYPE B, CLASS II, 24" SOLID YELLOW HATCHING, 20' SPACING
- Ⓓ TYPE B, CLASS I, 12" SOLID WHITE
- Ⓔ TYPE B, CLASS I, 4" SOLID WHITE CHEVRONS, 20' SPACING
- Ⓕ TYPE B, CLASS I, 4" SOLID DOUBLE YELLOW
- Ⓖ TYPE B, CLASS I, 4" SOLID YELLOW
- Ⓗ TYPE B, CLASS I, 4" SOLID WHITE
- Ⓘ TYPE B, CLASS I, 4" WHITE, SKIP LINE, 10' LONG, 30' SPACE
- Ⓙ TYPE B, CLASS I, 4" WHITE, DASHED LINE, 2' LONG, 6' SPACE
- Ⓚ TYPE B, CLASS II, PAVEMENT MARKING MESSAGE "ONLY"
- Ⓛ TYPE B, CLASS III (MMA), 24" CROSS BIKE, 3' SPACE
- Ⓜ TYPE B, CLASS I, 4" WHITE DASHED LINE, 3' LONG, 9' SPACE
- Ⓝ TYPE B, CLASS I, 6" SOLID WHITE
- Ⓞ TYPE B, CLASS I, 4" SOLID WHITE HATCH, 20' SPACING
- Ⓟ TYPE B, CLASS II, 24" SOLID WHITE HATCH, 20' SPACING
- Ⓠ TYPE B, CLASS I, 4" SOLID YELLOW HATCH, 20' SPACING
- Ⓡ TYPE B, CLASS I, 4" YELLOW, SKIP LINE, 10' LONG, 30' SPACE
- Ⓢ TYPE B, CLASS I, 4" YELLOW, DASHED LINE, 2' LONG, 6' SPACE

- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (RIGHT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (LEFT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (MERGE)
- TYPE B, CLASS II, PAVEMENT MARKING BICYCLE LANE ARROW (THRU) AND HELMETED BICYCLIST
- TWO-STAGE TURN BOX, SEE DETAIL
- TYPE B, CLASS II, PAVEMENT MARKING SHARROW
- DENOTES ALLOWABLE PARKING AREA
- WHITE, FLEXIBLE POST DELINEATOR, 40' SPACING

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SCALE
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Proposed Conditions Segment I

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PROJECT	SHEET NO.
0161-XXX-XXX	4

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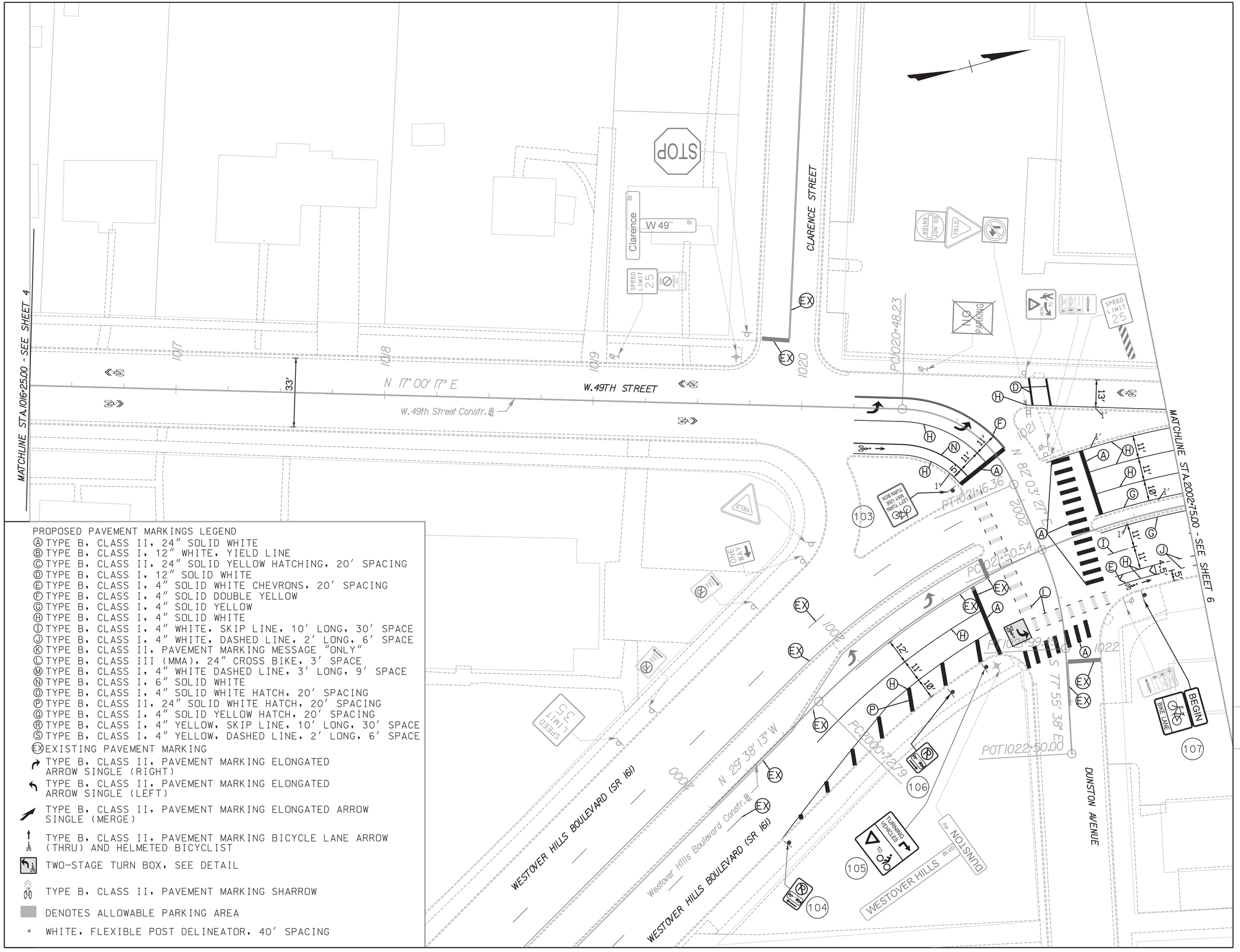

PROPOSED PAVEMENT MARKINGS LEGEND

- Ⓐ TYPE B, CLASS II, 24" SOLID WHITE
- Ⓑ TYPE B, CLASS I, 12" WHITE, YIELD LINE
- Ⓒ TYPE B, CLASS II, 24" SOLID YELLOW HATCHING, 20' SPACING
- Ⓓ TYPE B, CLASS I, 12" SOLID WHITE
- Ⓔ TYPE B, CLASS I, 4" SOLID WHITE CHEVRONS, 20' SPACING
- Ⓕ TYPE B, CLASS I, 4" SOLID DOUBLE YELLOW
- Ⓖ TYPE B, CLASS I, 4" SOLID YELLOW
- Ⓗ TYPE B, CLASS I, 4" SOLID WHITE
- Ⓘ TYPE B, CLASS I, 4" WHITE, SKIP LINE, 10' LONG, 30' SPACE
- Ⓙ TYPE B, CLASS I, 4" WHITE, DASHED LINE, 2' LONG, 6' SPACE
- Ⓚ TYPE B, CLASS II, PAVEMENT MARKING MESSAGE "ONLY"
- Ⓛ TYPE B, CLASS III (MMA), 24" CROSS BIKE, 3' SPACE
- Ⓜ TYPE B, CLASS I, 4" WHITE DASHED LINE, 3' LONG, 9' SPACE
- Ⓝ TYPE B, CLASS I, 6" SOLID WHITE
- Ⓞ TYPE B, CLASS I, 4" SOLID WHITE HATCH, 20' SPACING
- Ⓟ TYPE B, CLASS II, 24" SOLID WHITE HATCH, 20' SPACING
- Ⓠ TYPE B, CLASS I, 4" SOLID YELLOW HATCH, 20' SPACING
- Ⓡ TYPE B, CLASS I, 4" YELLOW, SKIP LINE, 10' LONG, 30' SPACE
- Ⓢ TYPE B, CLASS I, 4" YELLOW, DASHED LINE, 2' LONG, 6' SPACE
- (EX) EXISTING PAVEMENT MARKING
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (RIGHT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (LEFT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (MERGE)
- TYPE B, CLASS II, PAVEMENT MARKING BICYCLE LANE ARROW (THRU) AND HELMETED BICYCLIST
- TWO-STAGE TURN BOX, SEE DETAIL
- TYPE B, CLASS II, PAVEMENT MARKING SHARROW
- DENOTES ALLOWABLE PARKING AREA
- WHITE, FLEXIBLE POST DELINEATOR, 40' SPACING

DGN
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Richmond, VA 23219
804.343.7100

SR 161 Bike Infrastructure / Roadway Conversion Project

Westover Hills Blvd - Park Drive
Richmond, Virginia

No.	Revision	Date	Appvd.

Designed by MRL
Checked by JLB
Issued for 90% Final Design
Date May 2023

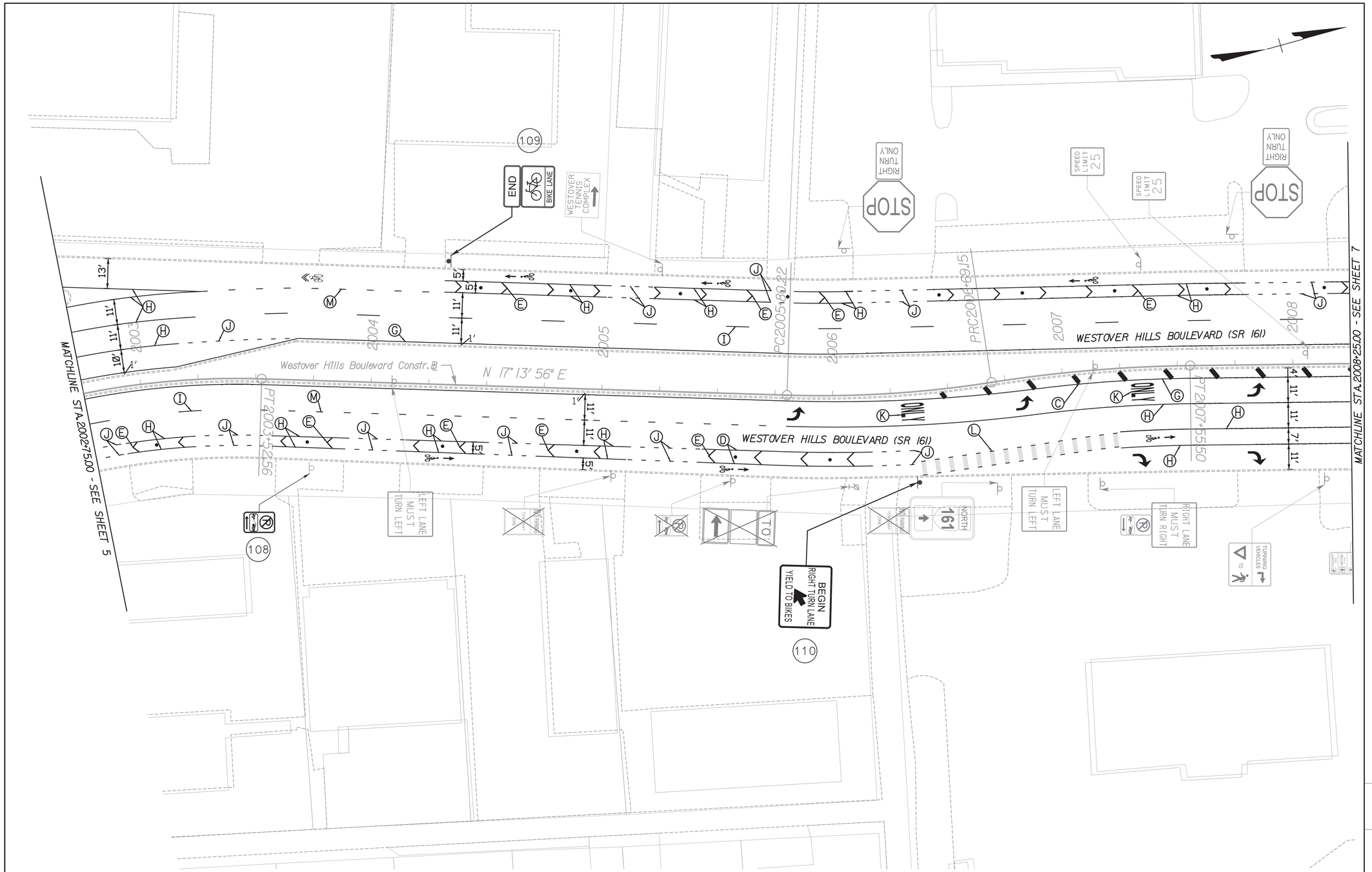
SCALE
0 20' 40'

Proposed Conditions Segment I

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
Lic. No. 0402051585
PROFESSIONAL ENGINEER

VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT	SHEET NO.
0161-XXX-XXX	5



PROPOSED PAVEMENT MARKINGS LEGEND

- Ⓐ TYPE B, CLASS II, 24" SOLID WHITE
- Ⓑ TYPE B, CLASS I, 12" WHITE, YIELD LINE
- Ⓒ TYPE B, CLASS II, 24" SOLID YELLOW HATCHING, 20' SPACING
- Ⓓ TYPE B, CLASS I, 12" SOLID WHITE
- Ⓔ TYPE B, CLASS I, 4" SOLID WHITE CHEVRONS, 20' SPACING
- Ⓕ TYPE B, CLASS I, 4" SOLID DOUBLE YELLOW
- Ⓖ TYPE B, CLASS I, 4" SOLID YELLOW
- Ⓗ TYPE B, CLASS I, 4" SOLID WHITE
- Ⓘ TYPE B, CLASS I, 4" WHITE, SKIP LINE, 10' LONG, 30' SPACE
- Ⓙ TYPE B, CLASS I, 4" WHITE, DASHED LINE, 2' LONG, 6' SPACE
- Ⓚ TYPE B, CLASS II, PAVEMENT MARKING MESSAGE "ONLY"
- Ⓛ TYPE B, CLASS III (MMA), 24" CROSS BIKE, 3' SPACE
- Ⓜ TYPE B, CLASS I, 4" WHITE DASHED LINE, 3' LONG, 9' SPACE
- Ⓝ TYPE B, CLASS I, 6" SOLID WHITE
- Ⓓ TYPE B, CLASS I, 4" SOLID WHITE HATCH, 20' SPACING
- Ⓟ TYPE B, CLASS II, 24" SOLID WHITE HATCH, 20' SPACING
- Ⓠ TYPE B, CLASS I, 4" SOLID YELLOW HATCH, 20' SPACING
- Ⓡ TYPE B, CLASS I, 4" YELLOW, SKIP LINE, 10' LONG, 30' SPACE
- Ⓢ TYPE B, CLASS I, 4" YELLOW, DASHED LINE, 2' LONG, 6' SPACE
- EX EXISTING PAVEMENT MARKING
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (RIGHT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (LEFT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (MERGE)
- TYPE B, CLASS II, PAVEMENT MARKING BICYCLE LANE ARROW (THRU) AND HELMETED BICYCLIST
- TWO-STAGE TURN BOX, SEE DETAIL
- TYPE B, CLASS II, PAVEMENT MARKING SHARROW
- DENOTES ALLOWABLE PARKING AREA
- WHITE, FLEXIBLE POST DELINEATOR, 40' SPACING

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SR 161 Bike Infrastructure / Roadway Conversion Project

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Proposed Conditions Segment I

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
Lic. No. 0402051585
PROFESSIONAL ENGINEER

VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT	SHEET NO.
0161-XXX-XXX	6

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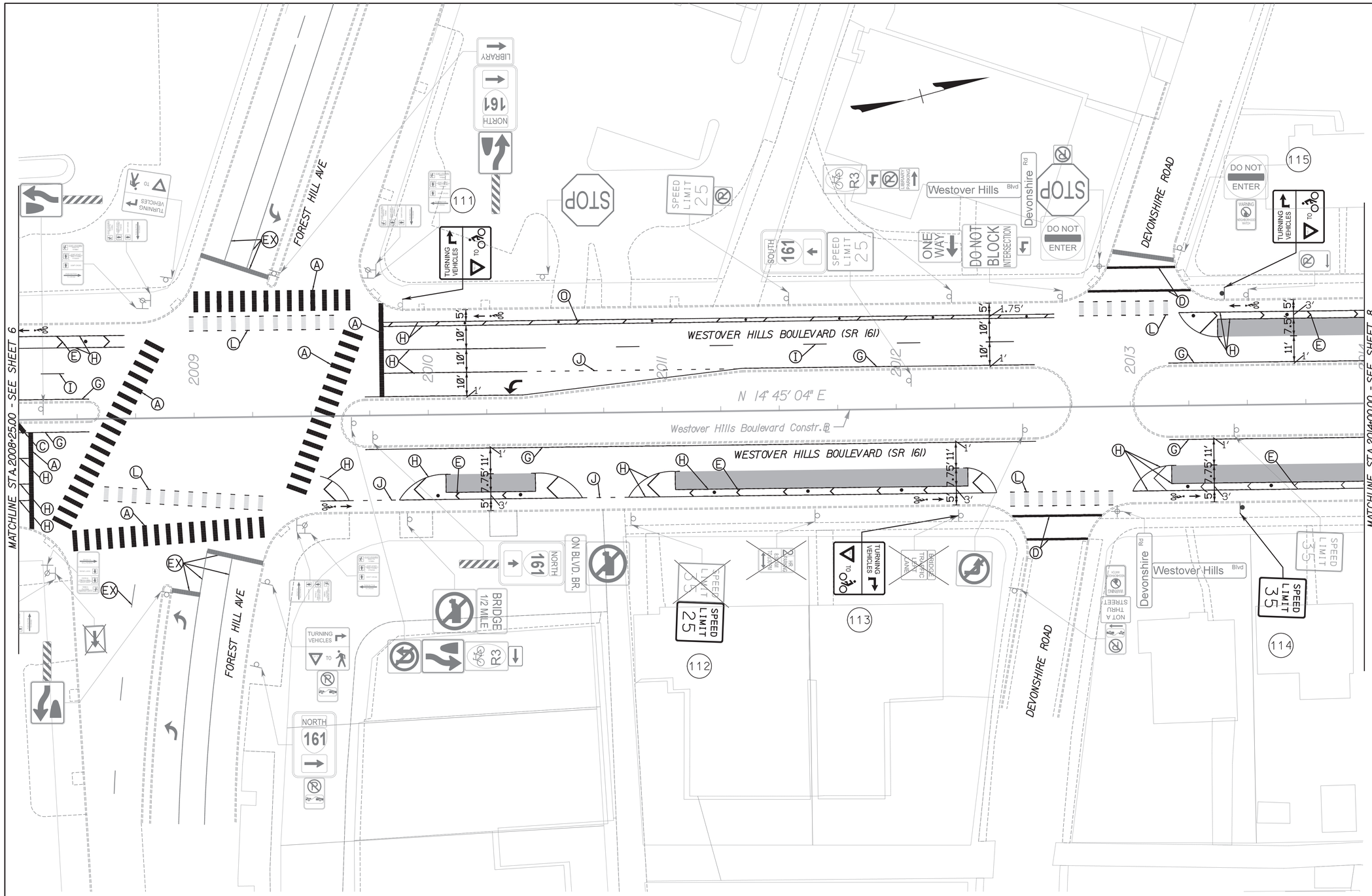

PROPOSED PAVEMENT MARKINGS LEGEND

- Ⓐ TYPE B, CLASS II, 24″ SOLID WHITE
- Ⓑ TYPE B, CLASS I, 12″ WHITE, YIELD LINE
- Ⓒ TYPE B, CLASS II, 24″ SOLID YELLOW HATCHING, 20′ SPACING
- Ⓓ TYPE B, CLASS I, 12″ SOLID WHITE
- Ⓔ TYPE B, CLASS I, 4″ SOLID WHITE CHEVRONS, 20′ SPACING
- Ⓕ TYPE B, CLASS I, 4″ SOLID DOUBLE YELLOW
- Ⓖ TYPE B, CLASS I, 4″ SOLID YELLOW
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- Ⓛ TYPE B, CLASS III (MMA), 24″ CROSS BIKE, 3′ SPACE
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- Ⓝ TYPE B, CLASS I, 6″ SOLID WHITE
- Ⓞ TYPE B, CLASS I, 4″ SOLID WHITE HATCH, 20′ SPACING
- Ⓟ TYPE B, CLASS II, 24″ SOLID WHITE HATCH, 20′ SPACING
- Ⓠ TYPE B, CLASS I, 4″ SOLID YELLOW HATCH, 20′ SPACING
- Ⓡ TYPE B, CLASS I, 4″ YELLOW, SKIP LINE, 10′ LONG, 30′ SPACE
- Ⓢ TYPE B, CLASS I, 4″ YELLOW, DASHED LINE, 2′ LONG, 6′ SPACE
- (EX) EXISTING PAVEMENT MARKING
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (RIGHT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (LEFT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (MERGE)
- TYPE B, CLASS II, PAVEMENT MARKING BICYCLE LANE ARROW (THRU) AND HELMETED BICYCLIST
- TWO-STAGE TURN BOX, SEE DETAIL
- TYPE B, CLASS II, PAVEMENT MARKING SHARROW
- DENOTES ALLOWABLE PARKING AREA
- WHITE, FLEXIBLE POST DELINEATOR, 40′ SPACING

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804.343.7100

SR 161 Bike Infrastructure / Roadway Conversion Project

Westover Hills Blvd - Park Drive
Richmond, Virginia

No.	Revision	Date	Appvd.

Designed by MRL
Checked by JLB
Issued for 90% Final Design
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SCALE
0 20' 40'

Proposed Conditions Segment I

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
Lic. No. 0402051585
PROFESSIONAL ENGINEER

VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT	SHEET NO.
0161-XXX-XXX	7

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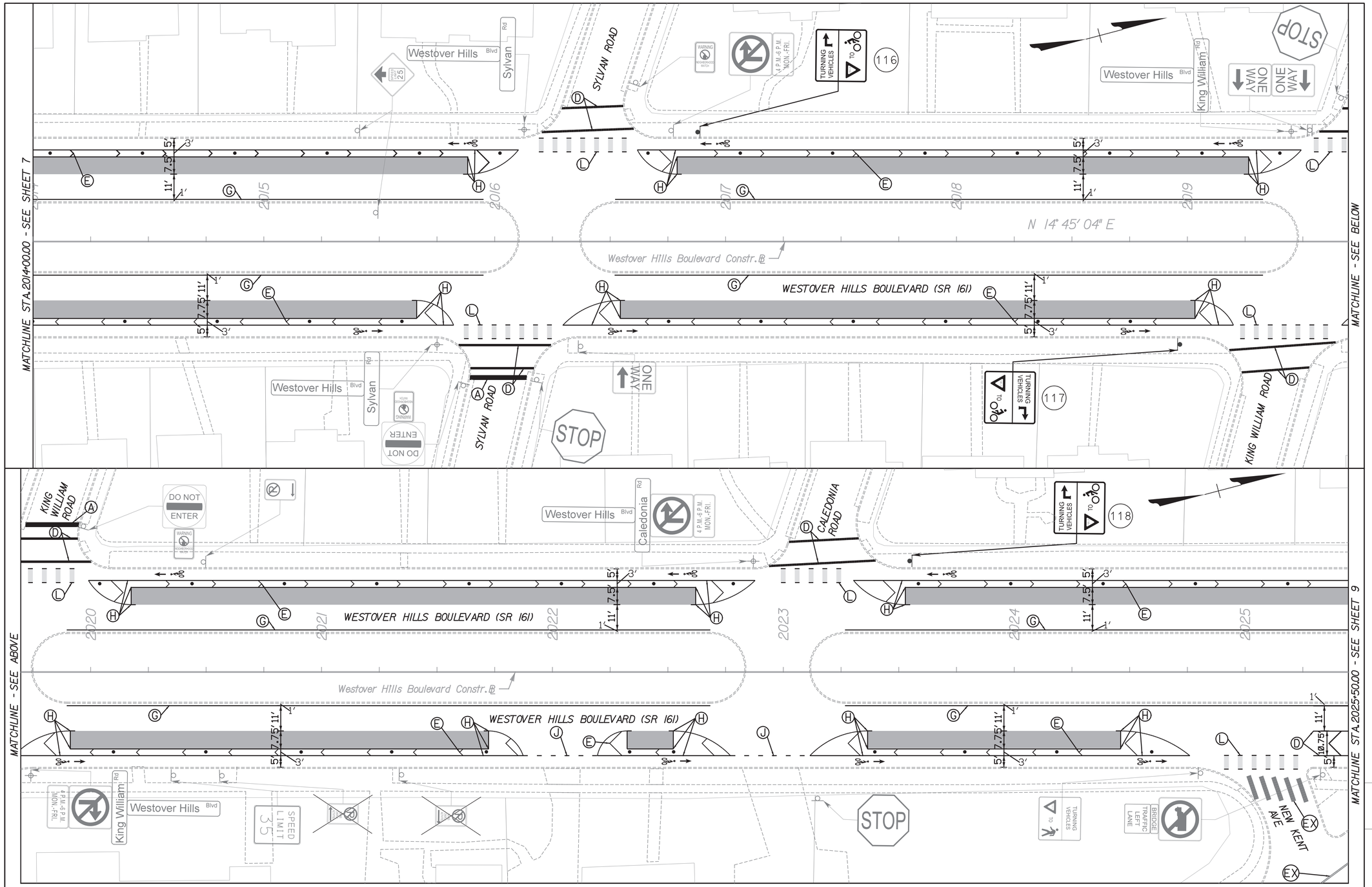

PROPOSED PAVEMENT MARKINGS LEGEND

- Ⓐ TYPE B, CLASS II, 24" SOLID WHITE
- Ⓑ TYPE B, CLASS I, 12" WHITE, YIELD LINE
- Ⓒ TYPE B, CLASS II, 24" SOLID YELLOW HATCHING, 20' SPACING
- Ⓓ TYPE B, CLASS I, 12" SOLID WHITE
- Ⓔ TYPE B, CLASS I, 4" SOLID WHITE CHEVRONS, 20' SPACING
- Ⓕ TYPE B, CLASS I, 4" SOLID DOUBLE YELLOW
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- Ⓝ TYPE B, CLASS I, 6" SOLID WHITE
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- Ⓟ TYPE B, CLASS II, 24" SOLID WHITE HATCH, 20' SPACING
- Ⓠ TYPE B, CLASS I, 4" SOLID YELLOW HATCH, 20' SPACING
- Ⓡ TYPE B, CLASS I, 4" YELLOW, SKIP LINE, 10' LONG, 30' SPACE
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- (EX) EXISTING PAVEMENT MARKING
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (RIGHT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (LEFT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (MERGE)
- TYPE B, CLASS II, PAVEMENT MARKING BICYCLE LANE ARROW (THRU) AND HELMETED BICYCLIST
- TWO-STAGE TURN BOX, SEE DETAIL
- TYPE B, CLASS II, PAVEMENT MARKING SHARROW
- DENOTES ALLOWABLE PARKING AREA
- WHITE, FLEXIBLE POST DELINEATOR, 40' SPACING

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SR 161 Bike Infrastructure / Roadway Conversion Project

Westover Hills Blvd - Park Drive
Richmond, Virginia

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Designed by MRL
Checked by JLB
Issued for 90% Final Design
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SCALE 0 20' 40'

Proposed Conditions Segment I

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
Lic. No. 0402051585
PROFESSIONAL ENGINEER

VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT	SHEET NO.
0161-XXX-XXX	8

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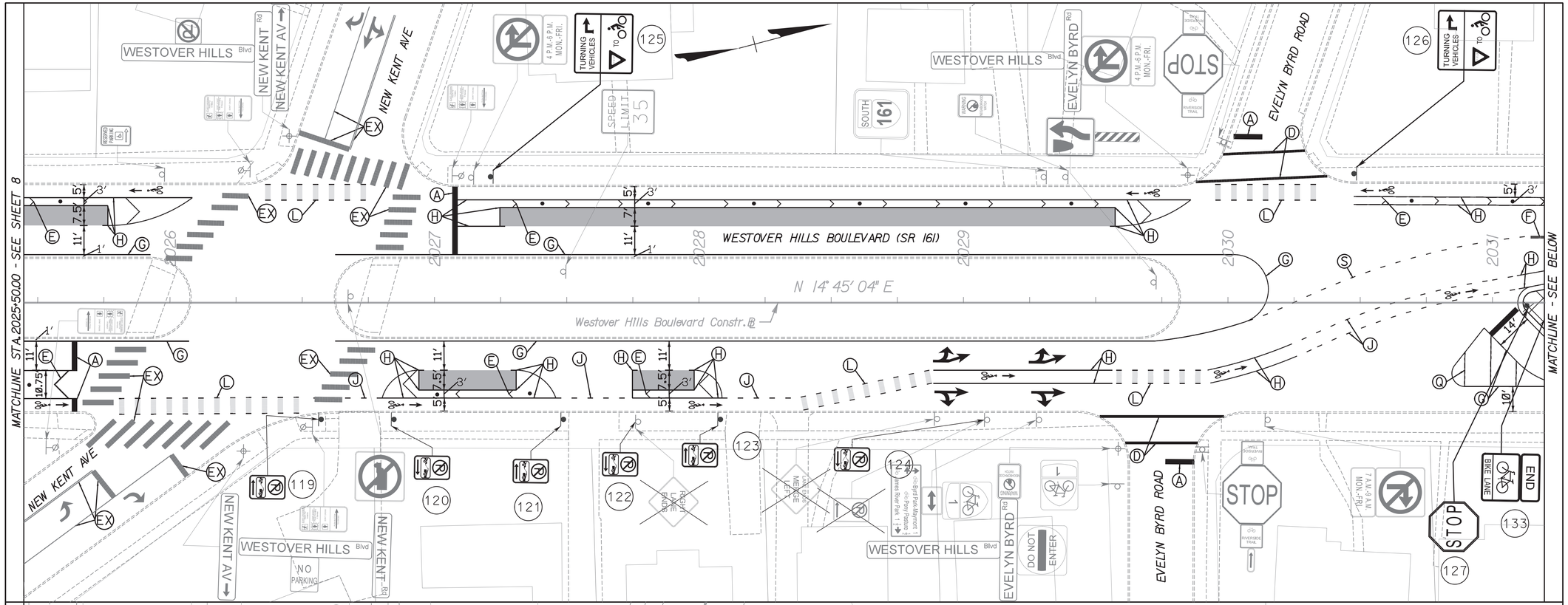

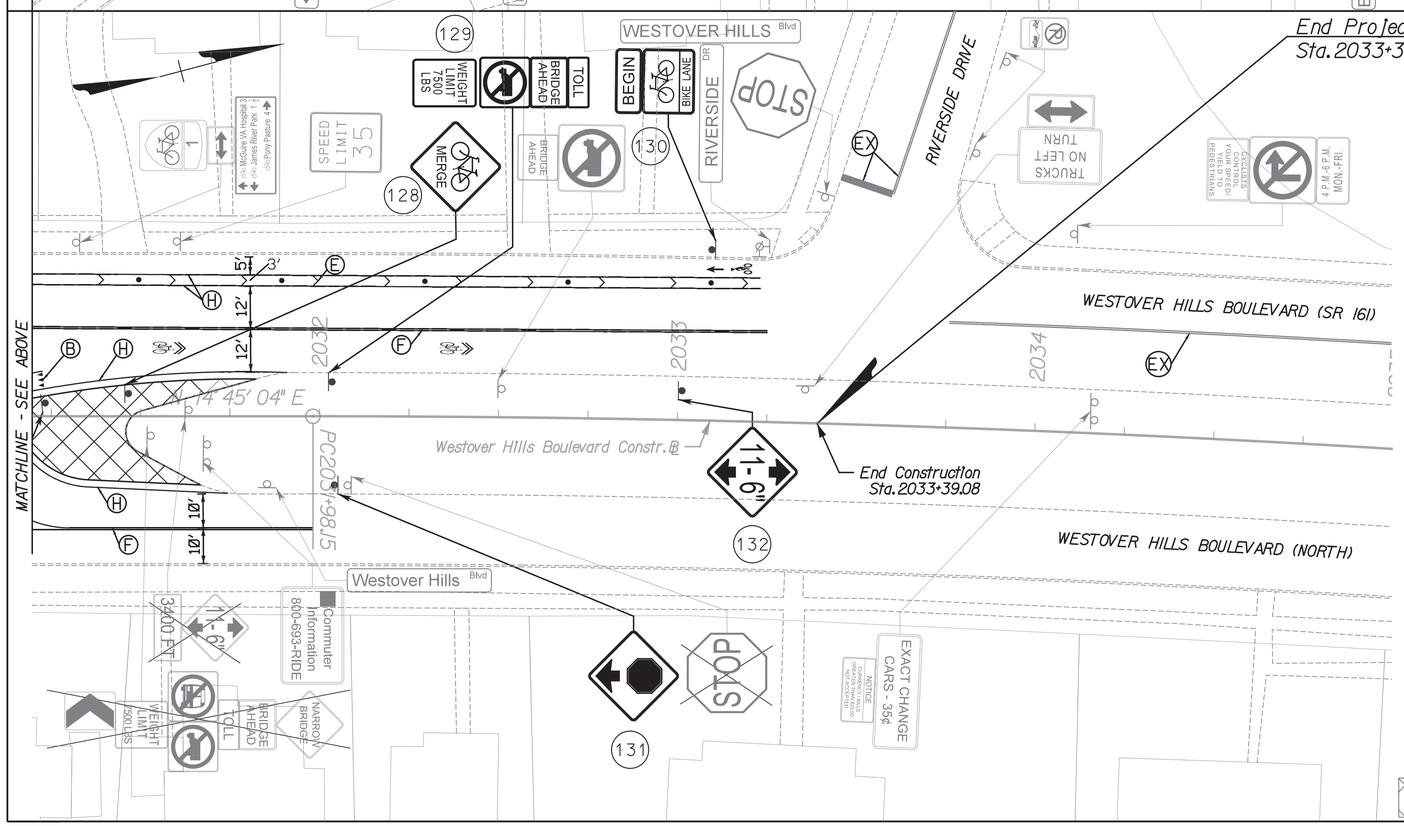

PROPOSED PAVEMENT MARKINGS LEGEND

- Ⓐ TYPE B, CLASS II, 24" SOLID WHITE
- Ⓑ TYPE B, CLASS I, 12" WHITE, YIELD LINE
- Ⓒ TYPE B, CLASS II, 24" SOLID YELLOW HATCHING, 20' SPACING
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- Ⓗ TYPE B, CLASS I, 4" SOLID WHITE
- Ⓘ TYPE B, CLASS I, 4" WHITE, SKIP LINE, 10' LONG, 30' SPACE
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- Ⓞ TYPE B, CLASS I, 4" SOLID WHITE HATCH, 20' SPACING
- Ⓟ TYPE B, CLASS II, 24" SOLID WHITE HATCH, 20' SPACING
- Ⓠ TYPE B, CLASS I, 4" SOLID YELLOW HATCH, 20' SPACING
- Ⓡ TYPE B, CLASS I, 4" YELLOW, SKIP LINE, 10' LONG, 30' SPACE
- Ⓢ TYPE B, CLASS I, 4" YELLOW, DASHED LINE, 2' LONG, 6' SPACE
- (EX) EXISTING PAVEMENT MARKING
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (RIGHT)
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- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (MERGE)
- TYPE B, CLASS II, PAVEMENT MARKING BICYCLE LANE ARROW (THRU) AND HELMETED BICYCLIST
- TWO-STAGE TURN BOX, SEE DETAIL
- TYPE B, CLASS II, PAVEMENT MARKING SHARROW
- DENOTES ALLOWABLE PARKING AREA
- WHITE, FLEXIBLE POST DELINEATOR, 40' SPACING
- DENOTES DEMOLITION OF PAVEMENT

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SR 161 Bike Infrastructure / Roadway Conversion Project

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SCALE 0 20' 40'

Proposed Conditions Segment I

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
Lic. No. 0402051585
PROFESSIONAL ENGINEER

VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT 0161-XXX-XXX
SHEET NO. 9

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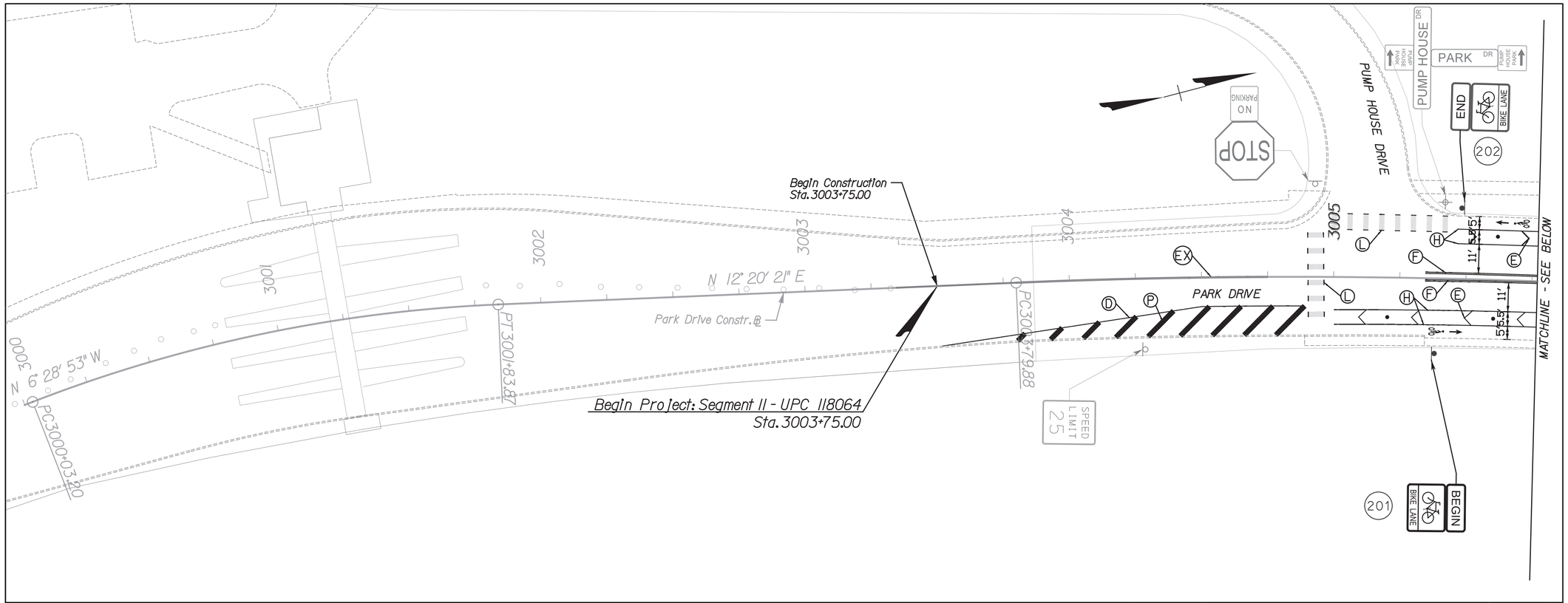

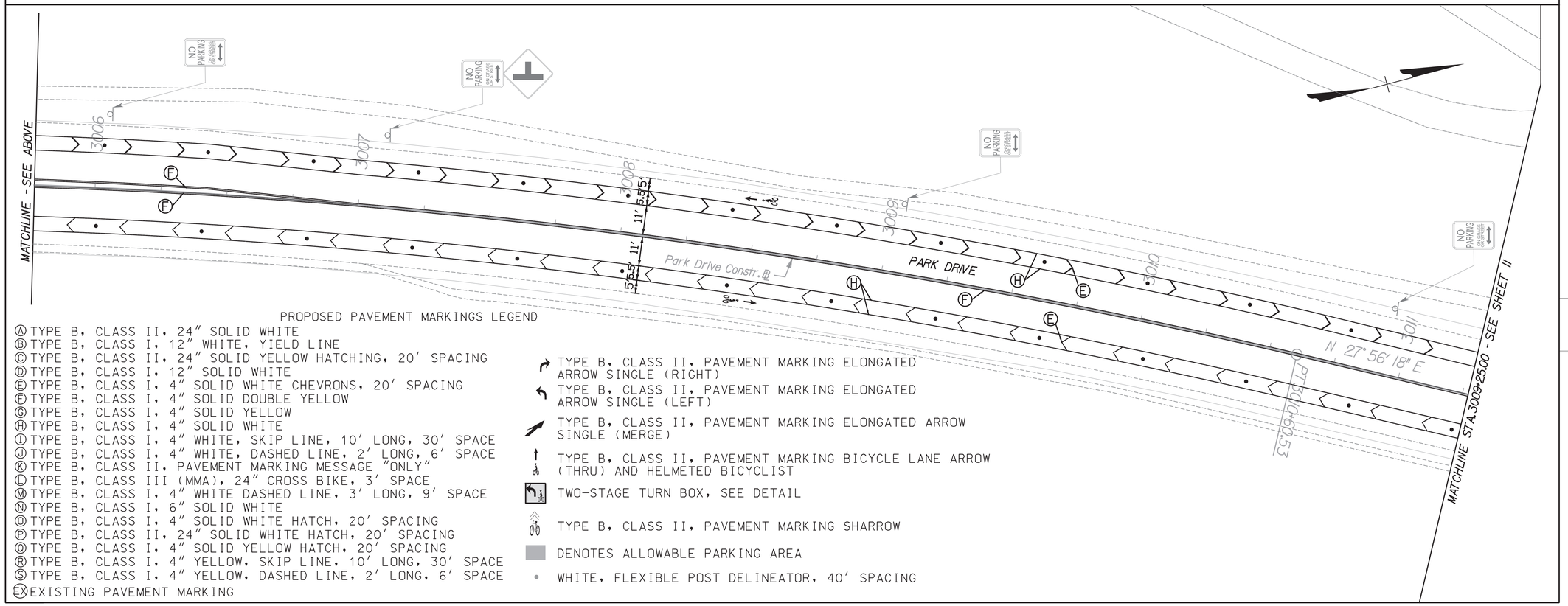

PROPOSED PAVEMENT MARKINGS LEGEND

- Ⓐ TYPE B, CLASS II, 24" SOLID WHITE
- Ⓑ TYPE B, CLASS I, 12" WHITE, YIELD LINE
- Ⓒ TYPE B, CLASS II, 24" SOLID YELLOW HATCHING, 20' SPACING
- Ⓓ TYPE B, CLASS I, 12" SOLID WHITE
- Ⓔ TYPE B, CLASS I, 4" SOLID WHITE CHEVRONS, 20' SPACING
- Ⓕ TYPE B, CLASS I, 4" SOLID DOUBLE YELLOW
- Ⓖ TYPE B, CLASS I, 4" SOLID YELLOW
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- Ⓟ TYPE B, CLASS II, 24" SOLID WHITE HATCH, 20' SPACING
- Ⓠ TYPE B, CLASS I, 4" SOLID YELLOW HATCH, 20' SPACING
- Ⓡ TYPE B, CLASS I, 4" YELLOW, SKIP LINE, 10' LONG, 30' SPACE
- Ⓢ TYPE B, CLASS I, 4" YELLOW, DASHED LINE, 2' LONG, 6' SPACE
- (EX) EXISTING PAVEMENT MARKING

- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (RIGHT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (LEFT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (MERGE)
- TYPE B, CLASS II, PAVEMENT MARKING BICYCLE LANE ARROW (THRU) AND HELMETED BICYCLIST
- TWO-STAGE TURN BOX, SEE DETAIL
- TYPE B, CLASS II, PAVEMENT MARKING SHARROW
- DENOTES ALLOWABLE PARKING AREA
- WHITE, FLEXIBLE POST DELINEATOR, 40' SPACING

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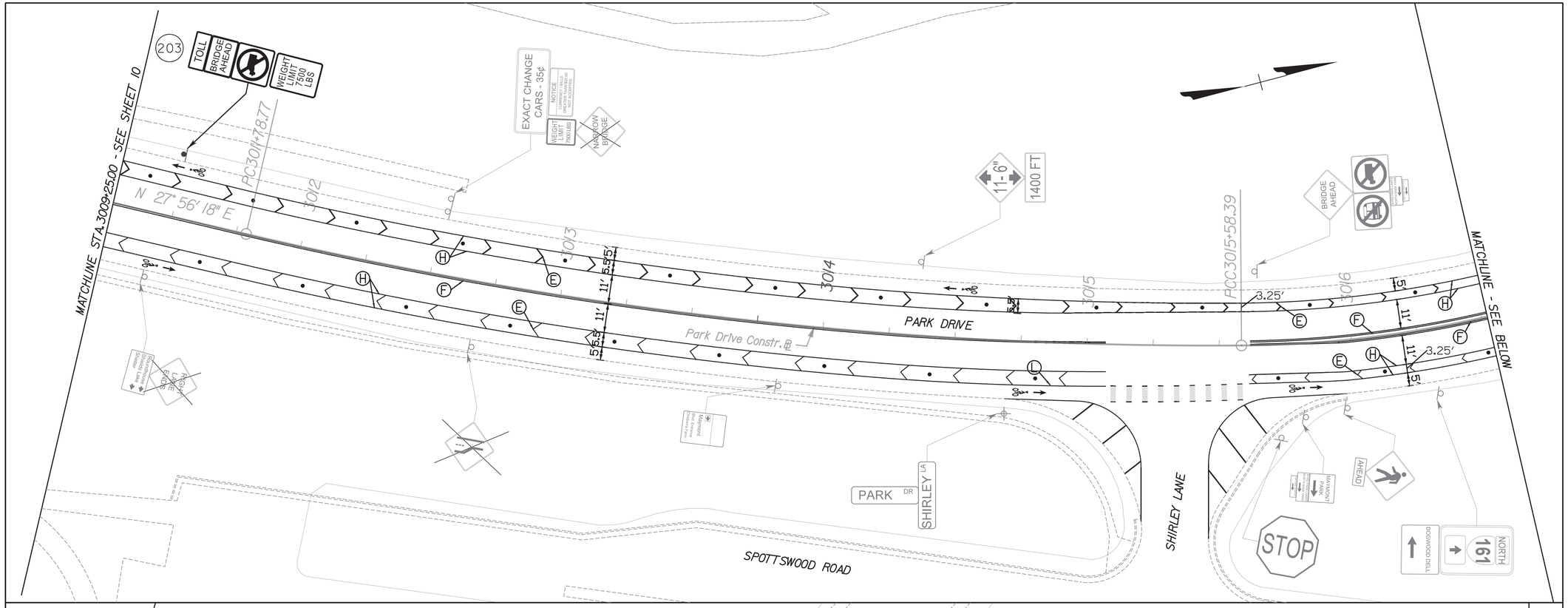
Proposed Conditions Segment II

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
Lic. No. 0402051585
PROFESSIONAL ENGINEER

VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT	SHEET NO.
0161-XXX-XXX	10



PROPOSED PAVEMENT MARKINGS LEGEND

- Ⓐ TYPE B, CLASS II, 24" SOLID WHITE
- Ⓑ TYPE B, CLASS I, 12" WHITE, YIELD LINE
- Ⓒ TYPE B, CLASS II, 24" SOLID YELLOW HATCHING, 20' SPACING
- Ⓓ TYPE B, CLASS I, 12" SOLID WHITE
- Ⓔ TYPE B, CLASS I, 4" SOLID WHITE CHEVRONS, 20' SPACING
- Ⓕ TYPE B, CLASS I, 4" SOLID DOUBLE YELLOW
- Ⓖ TYPE B, CLASS I, 4" SOLID YELLOW
- Ⓗ TYPE B, CLASS I, 4" SOLID WHITE
- Ⓘ TYPE B, CLASS I, 4" WHITE, SKIP LINE, 10' LONG, 30' SPACE
- Ⓙ TYPE B, CLASS I, 4" WHITE, DASHED LINE, 2' LONG, 6' SPACE
- Ⓚ TYPE B, CLASS II, PAVEMENT MARKING MESSAGE "ONLY"
- Ⓛ TYPE B, CLASS III (MMA), 24" CROSS BIKE, 3' SPACE
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- (EX) EXISTING PAVEMENT MARKING
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (RIGHT)
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- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (MERGE)
- TYPE B, CLASS II, PAVEMENT MARKING BICYCLE LANE ARROW (THRU) AND HELMETED BICYCLIST
- TWO-STAGE TURN BOX, SEE DETAIL
- TYPE B, CLASS II, PAVEMENT MARKING SHARROW
- DENOTES ALLOWABLE PARKING AREA
- WHITE, FLEXIBLE POST DELINEATOR, 40' SPACING

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SR 161 Bike Infrastructure / Roadway Conversion Project

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SCALE 0 20' 40'

Proposed Conditions Segment II

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
Lic. No. 0402051585
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VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT 0161-XXX-XXX
SHEET NO. 11

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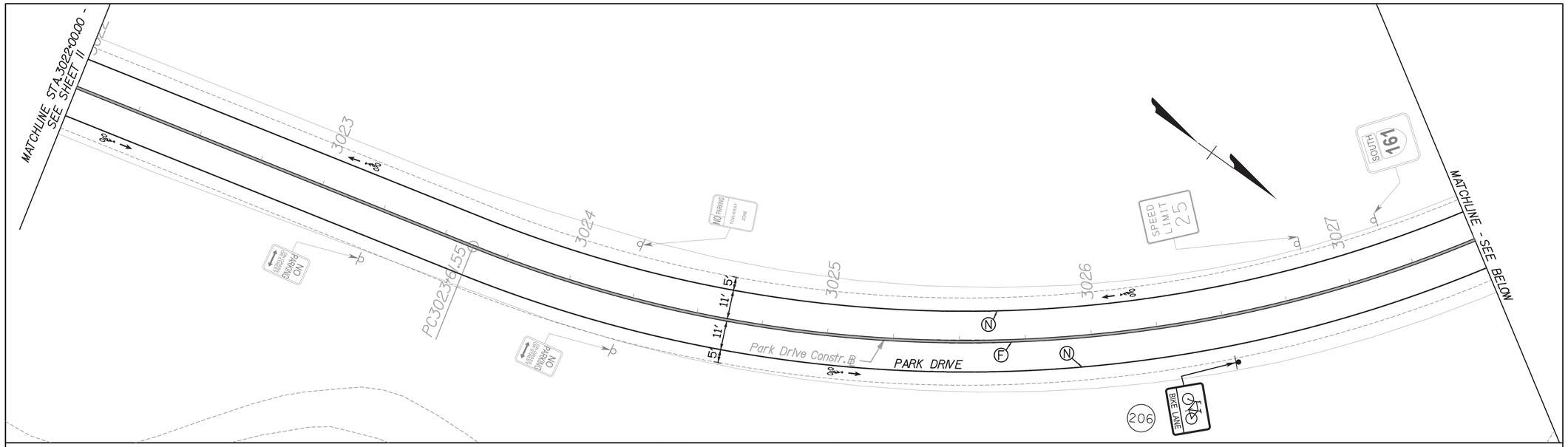

PROPOSED PAVEMENT MARKINGS LEGEND

- Ⓐ TYPE B, CLASS II, 24" SOLID WHITE
- Ⓑ TYPE B, CLASS I, 12" WHITE, YIELD LINE
- Ⓒ TYPE B, CLASS II, 24" SOLID YELLOW HATCHING, 20' SPACING
- Ⓓ TYPE B, CLASS I, 12" SOLID WHITE
- Ⓔ TYPE B, CLASS I, 4" SOLID WHITE CHEVRONS, 20' SPACING
- Ⓕ TYPE B, CLASS I, 4" SOLID DOUBLE YELLOW
- Ⓖ TYPE B, CLASS I, 4" SOLID YELLOW
- Ⓗ TYPE B, CLASS I, 4" SOLID WHITE
- Ⓘ TYPE B, CLASS I, 4" WHITE, SKIP LINE, 10' LONG, 30' SPACE
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- Ⓚ TYPE B, CLASS II, PAVEMENT MARKING MESSAGE "ONLY"
- Ⓛ TYPE B, CLASS III (MMA), 24" CROSS BIKE, 3' SPACE
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- (EX) EXISTING PAVEMENT MARKING
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (RIGHT)
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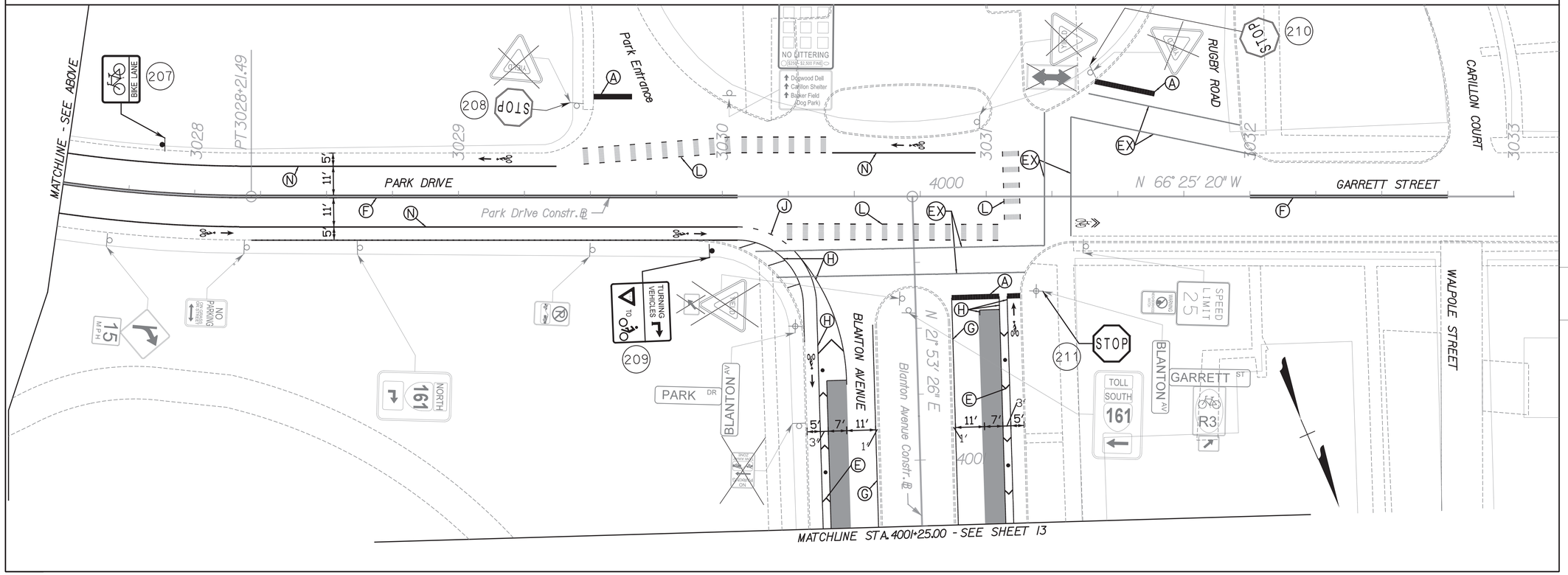
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (MERGE)
- TYPE B, CLASS II, PAVEMENT MARKING BICYCLE LANE ARROW (THRU) AND HELMETED BICYCLIST
- TWO-STAGE TURN BOX, SEE DETAIL
- TYPE B, CLASS II, PAVEMENT MARKING SHARROW
- DENOTES ALLOWABLE PARKING AREA
- WHITE, FLEXIBLE POST DELINEATOR, 40' SPACING



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SR 161 Bike Infrastructure / Roadway Conversion Project

Westover Hills Blvd - Park Drive
Richmond, Virginia

No.	Revision	Date	Appvd.

Designed by MRL
Checked by JLB
Issued for 90% Final Design
Date May 2023

SCALE 0 20' 40'

Drawing Title
Proposed Conditions Segment II

COMMONWEALTH OF VIRGINIA
JONATHAN L. BONGHI
Lic. No. 0402051585
PROFESSIONAL ENGINEER

VHB, Inc
Richmond, Virginia
PROFESSIONAL ENGINEER

PROJECT 0161-XXX-XXX
SHEET NO. 12

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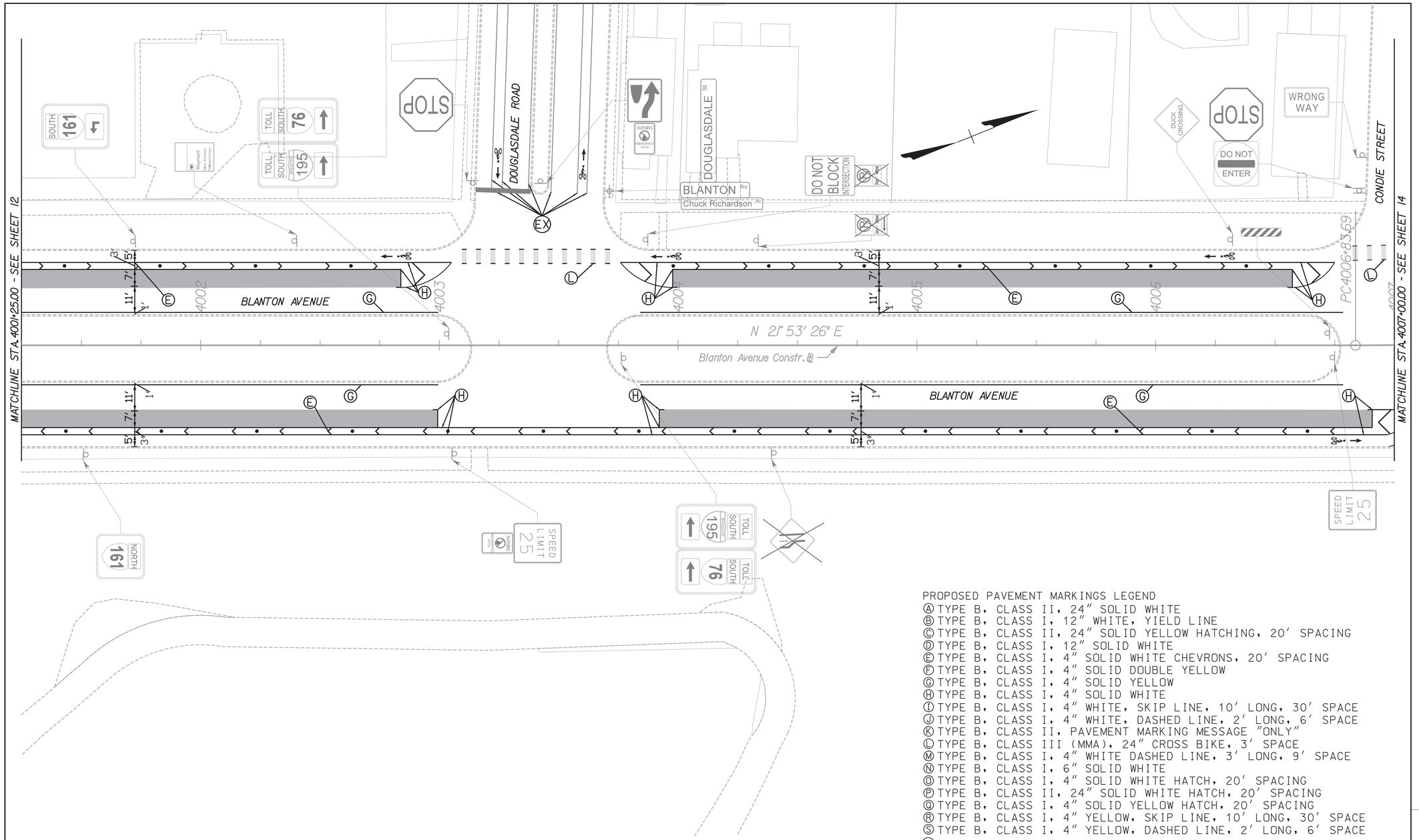

PROPOSED PAVEMENT MARKINGS LEGEND

- Ⓐ TYPE B, CLASS II, 24″ SOLID WHITE
- Ⓑ TYPE B, CLASS I, 12″ WHITE, YIELD LINE
- Ⓒ TYPE B, CLASS II, 24″ SOLID YELLOW HATCHING, 20′ SPACING
- Ⓓ TYPE B, CLASS I, 12″ SOLID WHITE
- Ⓔ TYPE B, CLASS I, 4″ SOLID WHITE CHEVRONS, 20′ SPACING
- Ⓕ TYPE B, CLASS I, 4″ SOLID DOUBLE YELLOW
- Ⓖ TYPE B, CLASS I, 4″ SOLID YELLOW
- Ⓗ TYPE B, CLASS I, 4″ SOLID WHITE
- Ⓘ TYPE B, CLASS I, 4″ WHITE, SKIP LINE, 10′ LONG, 30′ SPACE
- Ⓙ TYPE B, CLASS I, 4″ WHITE, DASHED LINE, 2′ LONG, 6′ SPACE
- Ⓚ TYPE B, CLASS II, PAVEMENT MARKING MESSAGE "ONLY"
- Ⓛ TYPE B, CLASS III (MMA), 24″ CROSS BIKE, 3′ SPACE
- Ⓜ TYPE B, CLASS I, 4″ WHITE DASHED LINE, 3′ LONG, 9′ SPACE
- Ⓝ TYPE B, CLASS I, 6″ SOLID WHITE
- Ⓞ TYPE B, CLASS I, 4″ SOLID WHITE HATCH, 20′ SPACING
- Ⓟ TYPE B, CLASS II, 24″ SOLID WHITE HATCH, 20′ SPACING
- Ⓠ TYPE B, CLASS I, 4″ SOLID YELLOW HATCH, 20′ SPACING
- Ⓡ TYPE B, CLASS I, 4″ YELLOW, SKIP LINE, 10′ LONG, 30′ SPACE
- Ⓢ TYPE B, CLASS I, 4″ YELLOW, DASHED LINE, 2′ LONG, 6′ SPACE
- Ⓔⓧ EXISTING PAVEMENT MARKING
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (RIGHT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (LEFT)
- TYPE B, CLASS II, PAVEMENT MARKING ELONGATED ARROW SINGLE (MERGE)
- TYPE B, CLASS II, PAVEMENT MARKING BICYCLE LANE ARROW (THRU) AND HELMETED BICYCLIST
- TWO-STAGE TURN BOX, SEE DETAIL
- TYPE B, CLASS II, PAVEMENT MARKING SHARROW
- DENOTES ALLOWABLE PARKING AREA
- WHITE, FLEXIBLE POST DELINEATOR, 40′ SPACING

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Richmond, Virginia
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PROJECT	SHEET NO.
0161-XXX-XXX	13

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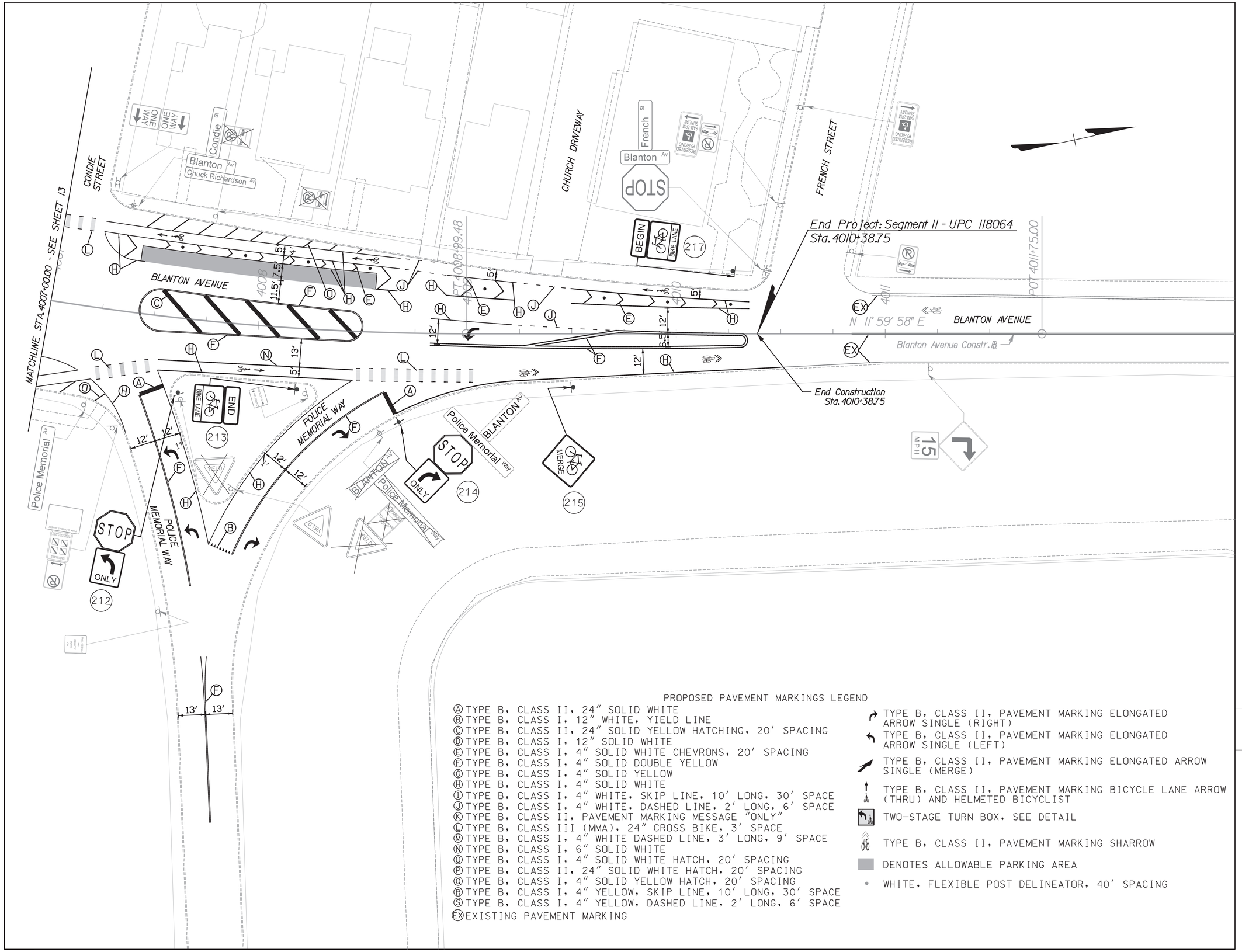

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